SIXTEENTH ANNUAL REPORT

OF THE

BOARD OF TRUSTEES

OF THE

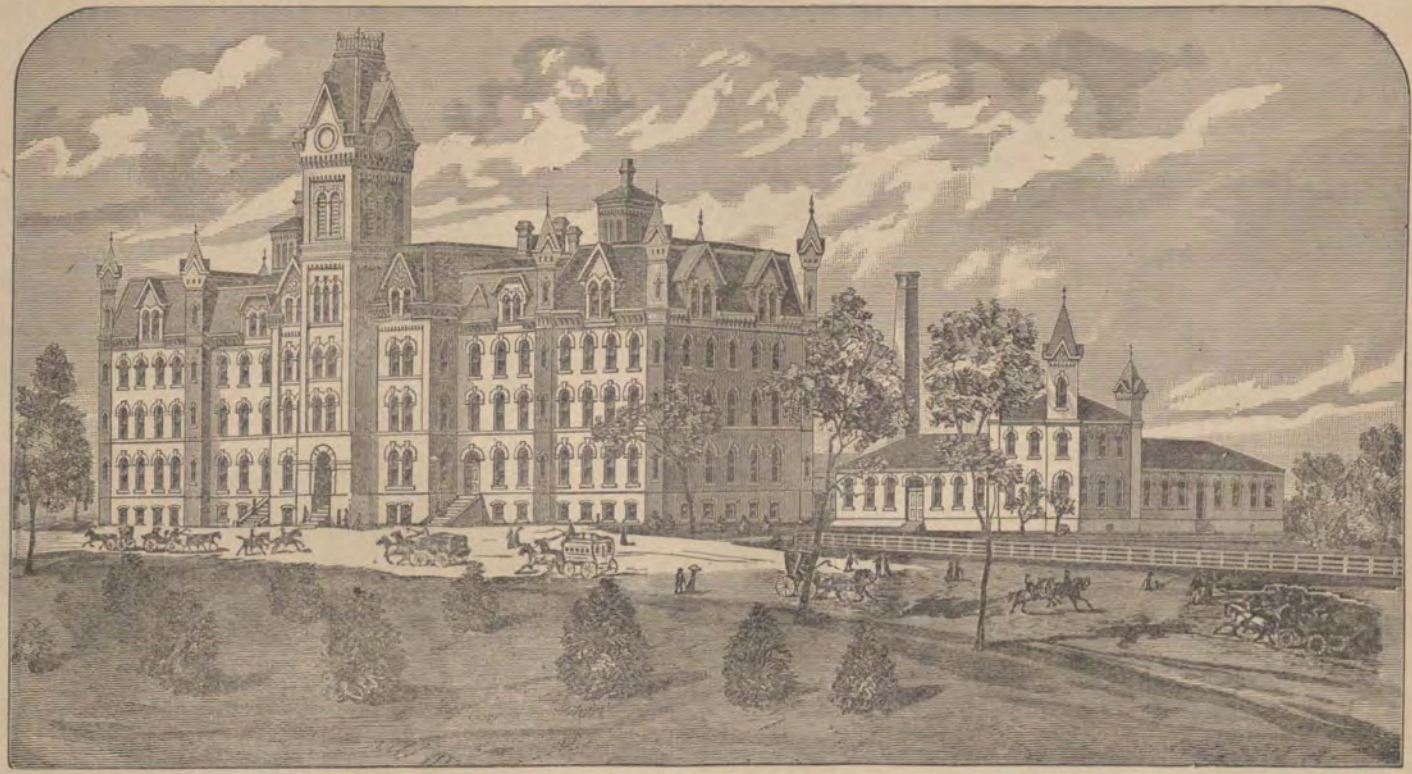
OHIO STATE UNIVERSITY,

TO THE

GOVERNOR OF THE STATE OF OHIO,

FOR THE YEAR 1886.

COLUMBUS, O.:
THE WESTBOTE COMPANY, STATE PRINTERS.
1887.



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BOARD OF TRUSTEES.

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OHIO STATE UNIVERSITY.

1886-1887.

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C. NEWTON BROWN,
Assistant Professor of Civil Engineering.

ALICE K. WILLIAMS,
Instructor in the French Language.—Woodruff Avenue.

ERNST A. EGGERS,
Instructor in the German Language.

OHIO STATE UNIVERSITY, COLUMBUS, *November* 23, 1886.

To His Excellency, GOVERNOR JOSEPH B. FORAKER:

SIR: I have the honor to transmit herewith the (16th) sixteenth annual report of the board of trustees of the Ohio State University.

Very respectfuliy,

Your obedient servant,

ALEXIS COPE,

Secretary of the Board.

REPORT OF TRUSTEES.

OFFICE OF THE BOARD OF TRUSTEES OHIO STATE UNIVERSITY,
COLUMBUS, OHIO, *November* 15, 1886.

Hon. JOSEPH B. FORAKER, *Governor of Ohio:*

SIR: In compliance with law the board of trustees respectfully submit the sixteenth annual report of the Ohio state university.

The accompanying reports of the president and faculty are for the university year ending in June, 1886. The report of the treasurer is for the fiscal year of the state, ending November 15, 1886, and shows in detail the receipts and disbursements of the funds of the university, exclusive of the appropriations made by the general assembly. The detailed statement of the disbursements of said appropriations will appear in the report of the auditor of state.

The part of the irreducible debt of the state which forms the permanent endowment of the university is shown by the treasurer's report to be $537,841.46, upon which the annual interest is $32,270.48.

The receipts from various sources which go to make up what may be called the regular income of the university have been as follows:

Balance in hands of treasurer November 15, 1885	$1,417 32
Interest on endowment	37,239 98
Term and laboratory fees of students	5,845 00
Rents of residences	1,930 00
Virginia military lands	202 28
Appropriations for expenses of trustees to repay amount paid out of current fund	572 07
Chemical apparatus sold to students	147 30
Experiment station, for work done by Prof. Weber	300 00
Farm department—sale of surplus products	1,500 00
Stall rent and sale of old carpet	30 00
Total receipts	$49,214 15

The disbursements of said funds have been as follows:

Expenses of trustees	$183 41
Salaries	31,916 63
Laboratories	742 14
Fuel and care of buildings	460 46
Printing and advertising	923 92
Expenses attending farmers' institutes	107 00
Ordinary repairs	1,184 32
Miscellaneous purposes	2,359 54
Total disbursements	$37,877 42
Balance in hands of treasurer November 15, 1886	11,336 83

In said account are included the funds received from the sale of the Virginia military lands, which have not been used in building and maintaining residences for the professors in accordance with the act of April 17, 1882.

The balance of said funds in hands of the treasurer November 15, 1885, was	$6,635 86
The receipts during the year	202 28
Total in hands of treasurer November 15, 1886	$6,888 14

Since the repeal of section 6 of the act of April 3, 1873, such balances have been carried into the account of the current funds of the university.

The face value of the outstanding collectible notes received from the sale of said lands is $3,891.34. Said notes are nearly all past due. It is probable that in some cases suit will have to be brought to collect the notes. Said lands have been sold under title bonds which become forfeited upon failure to pay the notes. The trustees have the option to sue on the notes, or to forfeit the bonds and recover back the lands. The policy has been, however, not to bring such suits as long as the purchasers have promptly paid the interest on the notes.

Mr. Samuel Kendrick, who was employed by the board some years ago to discover lands belonging to the university, has reported the recovery of a tract of 2,749 acres discovered by him in Scioto county. Said lands have been appraised at one dollar per acre. Mr. Kendrick has also, during the year, reported the discovery of a tract of 200 acres in Hamilton county.

This source of income to the university will be practically exhausted when the above notes are collected and the lands discovered by Mr. Kendrick are disposed of.

To show fully the actual receipts and disbursements of the university for the last fiscal year, there must be added to the amounts mentioned in the report of the treasurer the sums received from appropriations made by the general assembly and paid on warrants of the auditor of state. Below is given a tabulated statement showing balances of the several state appropriations November 15, 1885, the amounts appropriated during the last fiscal year, the total amounts subject to draft, the disbursements during the year, and the balances November 15, 1886:

Name of appropriation.	Balance Nov. 15, 1885.	Appropriated during year 1886.	Total amounts subject to draft.	Expended during fiscal year ending Nov. 15, 1886.	Balances Nov. 15, 1886.
Ordinary repairs	$ 70 29	$2,500 00	$2,570 29	$2,346 79	$ 223 50
Expenses of trustees	500 00	500 00	1,000 00	733 47	266 53
Fuel and care of buildings	1,244 15	2,000 00	3,244 15	2,415 82	828 33
Improvement of campus	329 14	1,000 00	1,329 14	936 69	392 45
Laboratories	3,126 91	.....	3,126 91	2,940 35	186 56
Green house	450 00	600 00	1,050 00	600 00	450 00
Library	1,920 78	2,000 00	3,920 78	2,362 92	1,557 86
Veterinary museum, etc	1,582 75	1,000 00	2,582 75	682 79	1,899 96
Equipment horticultural department	215 05	.....	215 05	169 08	45 97
Equipment laboratory agricultural chemist	1,623 21	.....	1,623 21	1,623 14	07
Addition to equipment mechanical department	2,034 19	.....	2,034 19	2,031 27	2 92
Salaries	.....	10,000 00	10,000 00	9,999 16	84
Totals	$13,096 47	$19,600 00	$32,696 47	$26,841 48	$5,854 99

The following table shows the disbursements from the current funds and from state appropriations:

Purpose for which disbursed.	Paid out of current funds.	Paid out of state appropriation.	Total.
Ordinary repairs	$1,184 32	$2,346 79	$3,531 11
Expenses of trustees	*183 41	*733 47	916 88
Salaries	31,916 63	9,999 16	41,915 79
Laboratories	742 14	2,940 35	3,682 49
Fuel and care of buildings	460 46	2,415 82	2,876 28
Improvement of campus	.....	936 69	936 69
Library	.....	2,362 92	2,362 92
Green house	.....	600 00	600 00
Veterinary museum	.....	682 79	682 79
Equipment of horticultural department	.....	169 08	169 08
Addition to mechanical department	.....	2,031 27	2,031 27
Equipment laboratory agricultural departm't	.....	1,623 14	1,623 14
Printing and advertising	923 92	.....	923 92
Attendance at farmers' institutes	107 00	.....	107 00
Miscellaneous purposes	2,359 54	.....	2,359 54
Grand totals	$37,877 42	$26,841 48	$64,718 90

*$507.07 of this amount was drawn to pay expenses of trustees during fiscal year 1885 and part of current year, which had been paid out of current funds.

From the foregoing it appears that the total receipts of the university for the fiscal year have been:

Current funds		$49,214 15
State appropriations		32,696 47
Total		$81,910 62
Total disbursements:		
Current funds	$37,877 42	
State appropriations	26,841 48	
Total		64,718 90
Leaving a balance November 15, 1886		$17,191 72

Of which $11,336.73 is in the hands of the treasurer, and $5,854.99 in the state treasury to the credit of the several state appropriations.

The number of professors employed by the university is 16; assistant professors, 1; instructors, 4; assistants, 4; lecturers, 1. Their position and compensation is shown elsewhere in this report.

During the year the department of French and German, which had previously been under the direction of Miss Alice K. Williams as instructor, was divided. Miss Williams was retained as instructor in French, and Mr. Ernest A. Eggers was elected instructor in German. A demand for greater opportunities for acquiring a knowledge of these important modern languages made such a step imperative. Mr. Eggers brings to his new duties fine talents, a liberal education, and a zeal and energy which promises success.

Benjamin W. Snow, a recent graduate of Cornell university, was elected assistant in the department of physics, *vice* J. E. Randall, who resigned to accept more profitable employment with an electric light company.

The foregoing are all the changes in the faculty during the last fiscal year.

The number of students in attendance during the last academic year was as follows: Fall term, 305; winter term, 276; spring term, 240. The number in attendance during the present term is 324.

The number in attendance in the several departments and classes, and the course of instruction pursued in each, are shown in the reports of the president and members of the faculty, and in the catalogue which is made a part of this report.

At the commencement in June, 1886, on the recommendation of the faculty, the following degrees were conferred upon the parties named:

William Adams Connell, Portsmouth, O.,	Degree of	E. M.
Edward Jasper Converse, Columbus, O.,	"	B. A.
George Strode Cunningham, Lancaster, O.,	"	B. Ph.
William Stow Devol, Marietta, O.,	"	B. Ag.
James H. Erskine, Lowellsville, O.,	"	E. M.
Clara Fisher, Columbus, O.,	"	B. A.
Frank Edwin Hill, Neville, O.,	"	B. Sc.
Alfred Andrew Jones, Columbus, O.,	"	C. E.
William White Keifer, Springfield, O.,	"	B. A.
George Albert Masters, Toledo, O.,	"	C. E.
James Porter Milligan, Rushville, O.,	"	B. A.
Wallace Clement Sabine, Columbus, O.,	"	B. A.
Otto Schroll, "	"	C. E.
Anna Neill Scott, "	"	B. A.

Horace Prescott Smith, Adams Mills, O.,	Degree of	B. Sc.
William P. Vandervort, Morrow, O.,	"	E. M.
Willis Burton Viets, Amboy, O.,	"	E. M.
Sern Perley Watt, Jamestown, Neb.,	"	M. E.

The post graduate degree of M. A. was in like manner conferred on Annie Wood Sabine, of Columbus, Ohio.

The necessity for larger annual appropriations for "ordinary repairs" was set forth in the last annual report.

Of late years they have been inadequate to properly care for and preserve the numerous buildings from premature decay, and to keep the steam-heating, gas and water apparatus in proper condition. The cost of such repairs over and above what the legislative appropriations would pay, has been paid out of the current funds of the institution, notwithstanding the fact that the original grant in effect provides that such expense shall be borne by the state.

The appropriations for this purpose during the last year were $1,000 less than the estimates, though larger than heretofore. The trustees therefore appreciated the necessity of rigid economy in their expenditure, and would have made the sum allowed meet the current demands if an unforeseen emergency had not arisen which had to be provided for.

For many years the condition of the tower of the main building has been such as to occasion anxiety concerning its safety. Shortly after its completion attention was directed to cracks appearing in its walls, and it was frequently examined by committees of experts in order that faculty and students might be satisfied of its security; and although the reports of such committees were usually to the effect that the tower was in no immediate danger of falling, such anxiety was never wholly abated. On November 14, 1883, the board of trustees appointed a committee, consisting of Professors McFarland and Robinson, and architect Harris, to examine into its safety, and report to the executive committee, who were instructed to carry out the recommendations of said committee of experts. On the 31st day of March, 1884, said committee made its report, expressing confidence in the safety of the structure, but recommending that a heavy iron rod be run through the inside of the front wall over the arch at the main entrance with heavy washers, to clasp the buttresses on the outside. This was shortly afterwards done, and it was thought that the danger, if any really existed, was averted. During the latter part of April of the current year, however, attention was again called to widening cracks in the foundation near the main entrance, and to other alarming indications that the front wall of the tower was falling. At the request of the board of trustees it was again examined by Professor Robinson, who expressed the belief that the sandstone facing around the base of the tower was slowly crushing under its load, and that it was extremely desirable, in fact, necessary, very soon, for security to the building, to replace the same with stronger stone.

It was also at the same time examined by architect Terrell, who agreed with Professor Robinson as to the necessity for some steps looking to its greater security. At the June meeting of the board of trustees architect Terrell made another examination of the tower, and reported that the openings at the base in the stone-work were much wider than when his attention was last called to them a few weeks before; that the

condition of the piers between the second story windows indicated a crushing of the brick-work on the inside; that the window sills and front wall of the tower were broken from top to bottom, and that there was great danger of the front of the tower falling from slight disturbance such as the action of the frost or firing cannon in front of the buildings.

With such a state of facts presented for their consideration, and feeling that such a danger admitted of no delay, the trustees at once set about repairing the falling tower. The real cause of the mischief, as reported by architect Terrell, was "an overloaded base constructed of soft brick with a thin shell of stone, and an arrangement of arches so that the weight of the superstructure was thrown too much on the small columns at the entrance."

To remedy the defect it was found necessary to remove the heavy overhanging mass of brick at the top of the tower, and to strengthen the foundation by replacing the crumbling sandstone with material of a more durable character.

At first it was thought this could be done without removing the roof of the tower, but as the work progressed it was found necessary not only to remove the roof, but to tear down all the walls, a distance of forty feet or more from the top of the tower, and the front wall clear to the foundation, remove the foundation and rebuild the same anew. The difficult and dangerous work of taking off the roof and bracing the floors so as to support the heavy weight of brick and stone to be used in rebuilding the structure was undertaken and successfully accomplished by Frank A. Ray, assisted by Scott A. Webb and M. F. Capron, all students of the university, after an experienced contractor had undertaken and abandoned the job. Said students were more or less employed about said work until the beginning of the present term, when they were compelled to re-enter their classes. The trustees feel a just pride in the fact that these students have received at the university the instruction and practical training that enabled them to successfully accomplish such a task.

This important and unavoidable work, together with other necessary repairs, has exhausted the appropriation for ordinary repairs made by the general assembly, and has made a heavy draft on the current funds in order to meet the large and unexpected outlay. The excess of such expenses over the appropriation is $2,735.00, for which the general assembly will be asked to make an appropriation. There are now more than twenty separate buildings on the university grounds, and all need more or less attention to preserve them from dilapidation. The steam-heating equipment is old and needs constant repairs. Water-tanks, cisterns and sewers also need attention. To properly care for all of them the trustees ask a reasonable appropriation for ordinary repairs, an estimate for which will be found elsewhere.

The gas-works at the university, which were ample to supply gas for illuminating and laboratory purposes when they were constructed several years ago, are about worn out and need extension in order to meet even present requirements. For the convenience and safety of the public, and for the protection of the buildings and other property of the university, it is necessary that the grounds and open spaces about the buildings should be lighted at night. There is now no lamp-post on the university grounds nor at the main entrance thereto. The extension of the gas-works should, in the opinion of the trustees, not only provide for the probable increase of consumption in the various buildings and

laboratories, but also for lighting the grounds. There will be needed for such extension the sum of $2,000, for which the legislature will be asked to make a special appropriation.

The Ohio agricultural experiment station has, for some years, conducted its experiments on the university farm under arrangement mentioned in previous reports. It has had the use of a small portion of the farm for field and garden experiments, in return for which its surplus products, except what have been needed for seed, museum purposes and the like, have been turned over to the university farm.

Its experiments have been conducted entirely separate and apart from those conducted on the university farm under the direction of the professor of agriculture. As a result, there have been two series of experiments, often of the same character, going on side by side, with a duplication of labor and outlay and with results more or less unsatisfactory. At a meeting held early in the present year a committee of the board of trustees was appointed, to meet a similar committee of the board of control of the experiment station, with a view to a more economical and satisfactory arrangement. Said committees agreed upon a plan of operation for the future, which was reported to the separate boards and ratified by both. The points of said new arrangement are in substance as follows:

The professor of agriculture of the university is made director, and the professor of horticulture vice-director of said station.

Said station is to conduct such experiments on the university farm and in the fruit and vegetable gardens, as may be mutually agreed upon by the board of control of said station and said professors of agriculture and horticulture; the field experiments to be conducted by the superintendent of the university farm, under the direction of the professor of agriculture, and the experiments in horticulture to be conducted by the superintendent of the gardens, under the direction of the professor of horticulture and botany,—the work to be done and the expense to be borne by said station.

The professor of agricultural chemistry to be chemist, and the professor of veterinary surgery to be veterinarian of said station.

Said station to turn over to the university all products raised, except what are needed for seed, museum purposes, and for experiments in feeding stock.

In pursuance of said arrangement, Mr. William S. Devol, B. Ag., a graduate of the university of the class of 1886, has been appointed superintendent of the farm and of the field experiments of said station—an appointment which is highly satisfactory to all concerned.

Mr. W. J. Green, who for some years has had charge of the fruit and vegetable gardens of the university, was appointed superintendent of the gardens and of the horticultural experiments of said station.

Under this arrangement it is believed that better results can be obtained. The experiment station will be able to multiply its experiments and conduct them on a broader scale, thus making them more valuable to the people of the state, while the departments of the university in which are taught the branches relating to agriculture, will be enriched by the facilities thus afforded for practical instruction in said branches.

The professors of the university who have thus become connected with the experiment station have, in addition to, and in connection with their regular work as teachers, conducted important investigations and experiments, whose results are of great value to the public, — detailed accounts of which have been published in the bulletins and reports of said station. Among the more important may be mentioned the investigations of Professor Weber into the method of testing frauds in the manufacture of butter, and investigations of Prof. Detmers as to the origin and cause of swine-plague, or hog-cholera.

The university farm, under the very able and energetic supervision of Professor Weber, is in excellent condition. His report as farm manager, filed herewith, shows its receipts for the year ending November 1, 1886, to have been $5,842.25; expenses, $4,300.88, leaving a balance of $1,542.17, of which $1,500 has been paid to the treasurer of the university. The report also shows in detail the farm operations during the year, an account of the field experiments, the improvements made, the number and value of stock and farm implements, and the amount and value of grain, feed, and other products raised, consumed and sold.

The farm has not, heretofore, been a source of revenue to the university. It has been regarded rather as holding the same relations to the departments of agriculture and horticulture as the various laboratories to the respective departments to which they belong. The revenue derived from the sale of surplus products has been expended in improvements or in conducting experiments in field and garden. It is gratifying to record the fact that while it has fully served its purpose as a laboratory for the agricultural students, it has been so successfully managed as to yield an important addition to the revenues of the university.

The farm still affords opportunities for many students to earn a portion of their expenses while attending the university, which opportunities will proably be increased by devoting a larger area to experimental work.

That part of the university estate which is devoted to experiments in horticulture, has been in charge of the professor of horticulture and botany, whose report is also filed herewith. Said report shows the receipts to have been $794.92; expenses, $785.74; balance on hand, $9.18.

The report also shows in detail the operations, including the experiments, conducted during the year.

The department of horticulture and botany has been greatly benefited by the small appropriation made for its equipment, and which has been expended in procuring an assortment of hand tools, budding knives, grafting implements, pruning shears, etc., and in adding numerous specimens of dried plants to the herbarium and living ones to the green-house. These have greatly improved the facilities for illustrative work. Attention is called to the recommendation of Professor Lazenby for an appropriation of $500 for the erection of a small propagating house for supplying plants for garden, grounds and green-house, which recommendation is heartily approved by the trustees.

The report of Professor Lazenby as superintendent of the grounds, details what has been done in the last year towards improving and beautifying the campus, and presents in a very convincing manner the desirability of further efforts in this direction. The influence of tasteful and beautiful surroundings on the mind and heart of the student cannot be overestimated. In this connection attention is invited to that part

of the report of President Scott, referring to the proposed establishment of a botanical garden and arboretum at the university, a proposition which has heretofore been cordially indorsed by the trustees, and which should receive the hearty approval of the people of the state and their representatives.

Attention is also called to the suggestions of Professor Lazenby, in the direction of providing greater opportunities for the physical training of students. Such suggestions are also cordially approved. It has long been the desire of the trustees to establish at the university a well-equipped gymnasium, in order that students and faculty might have the very best opportunities for needed physical exercise and development, but they have been without the requisite means. The suggestion of President Scott, of uniting in one building an armory and gymnasium seems practical and desirable. Such a building could be erected at a moderate cost, and is one of the needs of the university.

The military department of the university, under the very efficient command of Lieut. A. P. Blocksom, has reached and maintains a high state of discipline, and while it is preparing the young men for a proper discharge of their duties as soldiers should the country need their services, and offers a fine opportunity for out-door physical training, it is also a conservative force in maintaining order in teaching sentiments of soldierly honor and in promoting habits of obedience and respect for lawful authority. The wisdom of the land grant, in requiring instruction in military science and tactics, is justified of her children. Experience has shown that while it provides the material for properly officering the national militia in time of public danger, it also supplies a means of physical culture and mental and moral discipline whose value cannot be overestimated.

The appropriations for the veterinary museum and appliances for instruction in veterinary anatomy, physiology, etc., have been partly expended in the erection of a small building for dissecting the larger animals, in fitting up a room in the basement of the main building for the museum, and in supplying needed equipments in the departments of veterinary science and physiology. The model horse, ordered more than a year ago from the manufacturers at Paris, is completed, and will soon arrive. What remains of said appropriations will be expended in providing the necessary cases and furnishing the jars for the reception of anatomical specimens and in preparing skeletons and other articles needed for the equipment of the museum, which will be a very valuable acquisition to the students of veterinary science and comparative anatomy.

The appropriation made by the general assembly two years ago for additional equipment of the mechanical laboratory, and which has been wisely expended under the direction of Professor Robinson, has greatly increased the facilities for instruction in the higher grades of mechanical work. The university is thereby enabled not only to give the most thorough practical instruction in all that relates to the work of a mechanical engineer, but also to afford an opportunity for manual training to students in other departments. The students in this department are not only correctly instructed in the principles of mechanical movements, but side by side with such instruction are taught the use of tools, beginning with the simplest. Starting at the carpenter's bench and blacksmith's forge, they ascend step by step

through pattern-shop, moulding-room, and foundry, to the machine-shop, where they are taught the care and management of delicate and complicated machinery. As one of the conditions of graduation in this department, each student is required to plan and construct a model of some mechanical movement, which is deposited and preserved in the department. Special mention is made of the work in this department, because the subject of manual training in schools is justly claiming a large share of public attention.

In the other departments of the school of engineering, like opportunities are afforded for putting the knowledge gained to practical use.

The department of mining and metallurgy, under the very able direction of Professor Lord, is well equipped with furnaces for smelting ores, appliances for making assays of the more precious minerals, and a well-appointed laboratory for chemical analysis. These, with the thorough instruction imparted, are attracting a large share of the graduates of the university.

In the department of civil engineering, students have daily practice, in good weather, in the use of instruments in actual field work, and upon graduation are fully competent to take upon themselves the important and responsible duties appertaining to that profession.

In no department of the university has there been a greater progress than in that of comparative anatomy and physiology, under the able direction of Professor Tuttle, and no department is in more pressing need of additional equipment. The practical value of extensive and thorough instruction concerning the structure and functions of the living body, not only to those students who look towards the practice of medicine, but to every young man in active life, need not be urged. To make such instruction real and valuable, requires appliances not only for the use of the instructor in lectures and demonstrations, but particularly for the use of the student himself,—such as atlases and plates, skeletons, and other anatomical preparations, for the illustration of the grosser parts of the body; microscopes for the more minute examination; models and schemes of such parts as may be so illustrated, and such instruments for its explorations and experimental examinations as may be profitably used by the students. The faculty having recently and wisely made laboratory work in anatomy and physiology obligatory for a large proportion of the students, it is necessary, in order to secure to such students the most economical use of their time, that the appliances required for their use should be provided in numerous duplicates. The recommendation in the last annual report, for an appropriation of $5,000 for the equipment of this department, is therefore renewed.

Attention is respectfully invited to the report of Professor Thomas, wherein is set forth the necessity for additional room for the students in the physical department—a necessity which has been repeatedly urged both by Professor Thomas and Professor Mendenhall, his predecessor. This great department needs a suitable separate building in order to thoroughly adapt it to the requirements of the present time and place it abreast with like departments of competing institutions.

Attention is also called to the report of Professor Comstock, in which he so ably presents the great desirability of an observatory for practical instruction in astronomy.

The trustees also invite attention to the report of Professor Orton, in which he again presents the necessity for a fire-proof building in which to arrange and preserve the valuable collection of the state in the geological museum. This collection is constantly exposed to danger from fire; its loss would be irreparable—and while the necessity for additional buildings for other departments of the university is pressing, it is felt that this has the first claim and should be first provided for. Attention is called to the general features of such proposed building as set forth in Prof. Orton's report. The trustees again earnestly recommend an appropriation of $50,000 for the erection of such building.

The report of the librarian shows that during the last academic year the number of volumes added to the library was 1,485, and that the number at the close of said year, exclusive of some 2,000 pamphlets, was 6,844. Since that date a number of volumes have been added, which increases the collection to near 7,000 volumes.

The librarian and committee in charge have endeavored to obtain, first, those books best adapted to the present needs of all the departments. The collection is still very small and greatly inadequate to meet the demands of a growing university.

The trustees hope that the liberal appropriations for this purpose, made by the general assembly during the last two years, will be supplemented by still more liberal appropriations, annually, until the university library becomes worthy to be called by that name.

The pressing need of a more commodious and safer depository for the library collection is also set forth in the report of the librarian. A room in a fire-proof building should be provided for its preservation.

Attention is called to that part of the report of President Scott which refers to the necessity for some provision for the laboratory students in the department of pharmacy, and also to the report of Mr. Kauffman, who has charge of such work. Any provision which is made for such department in the present buildings, in their crowded condition, could only be temporary, and the expense of fitting up such a laboratory as will meet its requirements in any room which is now available would be largely thrown away. The best and most economical provision suggested is an addition to the building occupied by the chemical laboratories. Such building was erected with reference to additions, from time to time, and a wing sufficiently large to provide a lecture-room and laboratory for the department of pharmacy can be erected at moderate cost. It is thought that the sum of five thousand dollars would be sufficient to erect the building and fully equip the department.

The state meteorological bureau still has its headquarters at the state university, the professor of physics being its director. During the past year an officer of the signal service of the United States army has been detailed to make a series of observations relating to atmospheric electricity, and facilities for such work have been provided at the university.

The state archæological and historical society still is furnished space for the storing of its important and growing collection, and space has been set apart for the display of the Ohio educational exhibit at the New Orleans exposition, which, through the kindness of the state school commissioner, has been deposited at the university.

The condition and progress of the various departments of the uni-

versity, not specifically mentioned in this report, are set forth in the reports of the president and faculty.

In every department there is steady and substantial improvement, excellent order prevails, and both students and faculty manifest the true university spirit. The trustees will ask the general assembly for the following estimated appropriations for the ensuing year:

Expense of trustees	$500 00
Salaries	10,000 00
Ordinary repairs	3,000 00
Fuel and care of buildings	3,000 00
Care of green-house	600 00
Care and improvement of grounds	1,500 00
Library	3,000 00
Physiological laboratory	5,000 00
Physical laboratory	2,000 00
Repairs of tower	2,735 00

SPECIAL APPROPRIATIONS.

Propagating house	$500 00
Geological building	50,000 00
Astronomical building	6,000 00
Repairs of gas-works	2,000 00
Armory and gymnasium	20,000 00

The necessity for these appropriations is set forth in the preceding part of this report, and in the reports of the president and faculty, which are submitted and made a part hereof.

In the foregoing pages, and in the reports herewith presented, the trustees and faculty, to whom have been confided the important and growing interests of the state university, have endeavored to present a correct report of its condition and progress, and some but not all of its present needs. It has reached a period in its growth and development when ampler resources must be provided, if it is to fulfill its high mission. Among the public institutions of the state there is none that occupies a prouder position, or that is capable, if properly supported, of wielding a wider and more beneficent influence; and yet, as compared with the other state institutions, the financial aid it has received from the state has been small indeed. When compared with similar institutions in other states, the amount of state aid it has received is insignificant.

The general assembly in recent years has manifested a more liberal spirit, and a broader comprehension of the scope and purpose of the university. There has been a recognition of its growing necessities, and of the fact that it has become a vital part of the educational forces of the state. It now relies upon the general assembly for appropriations for a part of its annual current expenses. This, however, is unsatisfactory, for with an income which is indefinite and uncertain no well-considered plans can be devised for its future progress. The tenure of officers and teachers is insecure, and the future of the institution is clouded and doubtful. These difficulties have been wisely met in other states, notably Michigan and Wisconsin, where a fraction of a mill on the grand duplicate of the state is set apart for the support and maintenance of their respective universities. Ohio should do the same thing. The trustees have repeatedly in their annual report recommended such

action. In the states named the wisdom of such a provision is seen, not only in the vigor and solidity of their universities, but it has been a step in the direction of bringing the higher educational interests of the state into organic connection with the common schools, to the mutual advantage of both.

The above suggestions are commended to the thoughtful consideration of your excellency and the general assembly.

Very respectfully,

ALEXIS COPE, *Secretary.*

THE ANNUAL REPORT OF THE PRESIDENT.

Seth H. Ellis, President of the Board of Trustees:

DEAR SIR: I have the honor to submit the following as my fourth annual report, the fourteenth annual presidential report since the opening of the university.

The year has been one of faithful and successful labor, and has placed the university on a more solid footing than ever.

The division of the chair of modern languages brought us the only addition to the faculty. By this action the efficiency of the instruction in these languages has been much increased, for neither of the instructors being over-taxed as the one instructor was, they are able to bring to their work greater freshness and vigor. It will now be possible also to offer more extended courses in French and German. I congratulate you on your choice of the new instructor. Mr. Eggers brings to his duties, not only knowledge and training, but force and earnestness.

The number of students in attendance during the college year was 319. Of these 277 were young men, and 42 were young women. The number that has entered during the present term—the fall term, 1886—is 325, of which 279 are young men and 46 are young women. The number given in the catalogue, which accompanies this report, is made up of the students who have entered for the present college year, and those who entered last year after the publication of the catalogue.

Several, whose attainments would have secured their admission in previous years, have been excluded by the new requirement of a year of Latin for entrance to the courses in arts and in philosophy. Indeed, by lowering the standard of admission, it would be easy to increase the number of students far beyond what it is. But we should in that way only crowd our rooms with immature boys and girls who would be better off in the common schools, and who would consume the time and strength of teachers who ought to be employed in work of a higher grade.

The courses recently adopted have already met with a fair degree of success. Seventeen students began the short course in agriculture last year; nineteen this year. In arranging this course, and in fixing the terms of admission, we have endeavored to bring it within the reach of the greatest possible number of the young farmers of the state. We have placed in it the most available and practical studies taught in the university, and have formed two or three special classes for it. The standard of admission has been reduced below that for any other course, no algebra being required and candidates over twenty-one years of age being admitted without any examination. As yet we find

that some of those who enter on these easier conditions are unable to do the work prescribed; but we hope that as the real character and value of the course become better known, the sons of Ohio farmers will seek its advantages in far larger numbers, and with due preparation.

The new course in veterinary science has awakened much interest, and many inquiries concerning it are received. Four students are now under instruction in it* It is unfortunate that the prevalent idea of vet rinary education should be so low. Many of those who write for information seem to think that six months or a year is quite long enough to transform a man who is deficient in the very rudiments of education into a competent veterinarian. We should consider it an important part of the service which this department of the university is to render the public, to elevate the popular notion of what a veterinary education should be.

The work in pharmacy was initiated last year with a class of ten students. This year fifteen new students have entered it. A more extended curriculum has been laid down, requiring three years of study, and the degree of graduate in pharmacy—Ph. G.—has been adopted for those who complete it.

Hitherto the work in pharmacy proper has been conducted in the department of agricultural chemistry. The head of this department has done all in his power to afford accommodations to the students in pharmacy as well as his own; but the time is near when another arrangement must be made. The number of students in the two departments, of whom laboratory work will be required next term, exceeds the number of desks; and the quantity of material and apparatus is becoming so great as to interfere with the work for which the laboratory was created.

One of the most important events of the year has been the recasting of the three general courses of study. The end sought was to open to the student a wider range of elective studies. He may now, while pursuing one of these courses, incorporate into it a much larger amount from the others. This privilege is restricted, however, to the later years of college life. The preparatory and freshman studies are required as before, except that in the freshman year of the courses in arts and in philosophy an election is offered in the second and third terms between three hours a week of mathematics and three or four hours of science. In the sophomore year of these two courses nine hours a week are prescribed and eight are elective. In the junior year eleven hours a week are prescribed and five are elective. In the senior year eight hours a week are prescribed and seven are elective. In the course in science all work below the sophomore year is prescribed. In that year ten hours a week are prescribed and seven are elective. In the junior year six hours and in the senior year five hours are prescribed, and ten hours are elective; five of the latter, however, must be science.

Thus during the earlier years of his collegiate career the student is required to lay a foundation of general knowledge and discipline; but as he becomes more mature and is better qualified to judge for himself, he will assume a partial direction of his course. This is in harmony with sound pedagogical principles. It avoids, on the one hand, the old extreme of a hard and fast requirement of all studies without regard to

*By a typographical error I was made to say in my last report "seventeen" instead of seven.

the student's aptitudes and purposes, and, on the other, it shuns the new and more pernicious extreme of making all studies elective. It requires enough to give breadth and solidity; it leaves enough free to meet the peculiarities of individuals. At the same time the logical order of studies is better observed than before. For example, chemistry precedes physiology instead of accompanying or following it; more mathematics is secured as a preparation for physics; and ethics follows psychology in each of the courses.

The following rule concerning examinations has recently been adopted:

"*Resolved*, That where two or more written examinations have been held during the term in any college study, the professor in charge of the department may, at his discretion, give credit for the work of the term to such students as have passed the mid-term examinations and given other satisfactory evidence of their proficiency, without holding them for the final examinations."

A principal advantage of this rule is that it tends to promote regularity of work. When the result of a term's work is made to depend wholly on a final examination, there is a strong temptation to defer earnest preparation for it till the time of account draws near. In the degree to which this temptation prevails, the best fruits of study are sacrificed. Instead of forming habits of systematic and persevering application, which are of the very essence of education, the student drifts into habits of desultoriness and procrastination. It is desirable that examinations should be so arranged and conducted as to secure the highest degree of uniform effort,—that is, effort brought up to the highest point that the student is able to sustain without injury, day by day throughout the year.

This plan avoids the evil of making the success or failure of the work of an entire term depend on a single test. The first students, indeed, never fail, but even they sometimes stand lower on a single examination than they would on an average of two or three. For they are liable, through illness or other unavoidable hindrance, to be taken occasionally at a disadvantage; but it is not likely that this will happen two or three times in succession. A similar disadvantage, impairing in an equal ratio the work of an average student, may cause him to fail, whereas a second and third examination will probably show him at his true worth.

The new plan has advantages for the teacher as well as for the student. If the student is indifferent, the greater part of the teacher's labor is wasted. While it is true that an intelligent and vigorous teacher does much to inspire his class, it is equally true that a studious and eager class does much to inspire the teacher. A teacher can do his best only with industrious and responsive students. Whatever, therefore, contributes to industry and interest on the part of the class, contributes also to the power of the instructor.

Under this rule the teacher may distribute his work of examination so as to avoid a heavy accumulation of it at any one time. This will allow him to give to each paper the attention of a clear and unwearied brain and time enough for a careful judgment of its merits. Formerly the case has been widely different. Every class in the university has been examined within a few days and each teacher has been obliged to decide within that time upon the papers of all the students in his department. The amount of this work, considering the time into which

it must be compressed, was sometimes enormous. For one or two days it may be done well, and the strain be borne without injury; but for the rest it must be performed with reduced energy, and either the work must be slighted or the examiner must pay a heavy penalty in nervous prostration.

These benefits may not all be immediately realized; some of them may be realized only in a subordinate degree; but the probability of gaining them amply justifies the change that has been adopted.

The moral and religious tone of the university is a matter which we should hold subordinate to nothing else. Intellectual acumen and scholastic attainments will be of no value to a man—the man himself, however highly educated, will be a bane to society, if he be immoral. Rectitude, probity, purity, are qualities of chief consequence. Character is the supreme consideration; nothing else is second to it. I am glad to believe that a healthy moral sentiment prevails among the students. The public opinion in the university approves truthfulness and uprightness and manly dealing, and it so heartily condemns meanness and immorality that they are seldom manifest.

A branch of the Young Men's Christian Association has been maintained for three years, with an increasing membership and an extending influence. It has been of great use in bringing together and thus strengthening and encouraging the Christian young men of the university.

The attendance of the students at the chapel exercises is almost universal, a few being excused a part of the time on account of special inconvenience in being at the university at the time appointed for the service. There are always several members of the faculty present, and I am indebted to some, not only for their regular attendance, but for their cordial support and for their kindiness in conducting the exercises on various occasions.

An attempt has been made at two different times to have clergymen from the city attend by turns as often as once a week; but the great distance has proved to be an inseparable obstacle.

Usually a hymn is sung, a selection from the Scriptures is read, and prayer is offered. The music is in charge of Professor Smith, who, with his efficient choir, has given great satisfaction. The desire is that the other part of the exercises may be free from dogma, simple, sincere and reverent. The order is frequently varied with a reading or an address on some moral or educational topic.

The literary societies do an important part in the education of their members. The interest in them is well maintained, and the results of their work are highly creditable. The general appreciation with which they are regarded is shown by the large audiences that greet them on all their public occasions.

The battalion manifests unusual spirit and is making commendable proficiency. The number of students excused on special grounds has been steadily reduced, until it has, perhaps, reached, or almost reached, a minimum.

I have pleasure in stating that the present management of the dormitories is very satisfactory. The expenses are reasonably low, and an orderly spirit is maintained. At the close of the last college year Mr. and Mrs. W. W. Scott, who had been in charge of the large dormi-

tory for seven years, retired. They had rendered faithful service, and the institution has lost in Mrs. Scott a woman of unusual qualifications for such a position. Mr. and Mrs. Lehman, who have succeeded them, enter upon their new duties with zeal, and they have the cordial co-operation of the members of the club.

Outside clubs continue to flourish, four having been organized the present term with an aggregate membership of about sixty. Many students prefer these clubs, because they combine the social and economical features of the dormitory with the privacy of family life.

In accordance with the instructions of the board, an earnest and protracted effort was made to provide during the year a course of lectures in elementary law, and at one time confident expectations were entertained that such a course would be delivered by able and distinguished men. Judge Daughterty delivered one lecture, and would have delivered more but for the failure of his colleagues. One of these, Judge Johnson, of the Supreme Court, was obliged to withdraw from his engagement on account of the state of his health; and the others felt compelled by the pressure of professional business to postpone their lectures from time to time till it was too late for them.

The work in elocution, though by no fault of the instructor, was less satisfactory than it was the previous year. This was owing in part to the fact that arrangements for the work were so long delayed, and partly to certain exigencies in the general program and rules which reduced the attendance of the classes in this subject.

An organic unity of the university with the common schools would seem to be in accordance with the fitness of things and would promote the efficiency of both. As far as the trustees and faculty can effect it, the university and the schools have already been brought into harmony and co-operation. The requirements for admission have been adapted to the attainments of candidates who obtain their preparation in these schools. Pupils who have acquired the knowledge and training that a good district school can give are able to enter the preparatory department, and there are nearly forty high schools of the state whose graduates are eligible to freshman rank at the university. For admission to the freshman class no Greek is required in any course, and candidates who come from high schools in which no German is taught may bring Latin as a substitute in any course, except two. It remains for the general assembly to place the university in such an official relation to the other parts of our system of public instructiou as the proper performance of her functions seems to require.

The reasons urged in former reports for the erection of a new building for the department of geology have lost none of their force by delay. On the contrary they are more cogent than ever. The museum continues to grow, and yet continues to be hampered in its growth by lack of room. If fire should destroy it, the loss would be irreparable; and the recent destruction of educational buildings by fire, abroad and at home, warn us that the danger is not imaginary. I commend to your attention the strong statement in favor of a new building, contained in the report of the head of the department.

The need of other buildings increases year by year. The professor of physics again asks that you will consider the importance of providing more suitable quarters for his department. He but desires what was no less earnestly desired by his predecessor, and I hope that the time is not

far off when we shall have a physical laboratory equal to any in the country.

Other very desirable objects, for which money could be profitably expended, are a botanic garden, and a building to be used as a drill-hall and gymnasium. I hope that it will not be long before both of them can be provided. A propagating house would be of great value to the department of botany and horticulture.

I would call special attention to the report of the professor of zoology. Your appreciation of the wants of his department was shown last year by your ready response to his request.

Unfortunately the condition of the treasury of the state proved to be such that it was thought expedient not to press the matter, and the wants still remain to be supplied. I trust that you will again indorse the request and that we shall this year reach a more satisfactory result.

What is said by the professor of Latin in regard to the purchase of illustrative material for teaching the ancient classics, is commended to your consideration. I hope that the small sum asked for can be allowed.

I wish to second also the request of the professor of mathematics and astronomy for the erection and equipment of a small astronomical observatory for the purposes of instruction. The reasons for it are set forth in his reports for this and the last year.

The library is daily increasing in usefulness. The books purchased within the year form a body of working material that is worth to teachers and students far more than it has cost. Indeed it is safe to say that no money expended by the university, except that for tuition, brings a return of higher educational value. For a university, however, the library is still a very small collection, and at its present rate of growth it will be many years in attaining a size commensurate with the demands of the institution. The librarian asks for an appropriation of five thousand dollars for the coming year. It is none too much, and that sum can be expended to great advantage.

I was gratified to find in the general assembly last year a growing sentiment in favor of a permanent appropriation for the university. We have often presented the reasons for the adoption of this course, and the plea for it has been urgent. The university should be recognized as a part of the educational system of the state by being placed on the tax duplicate, side by side, with the common schools. One-twentieth of a mill would enable us, in time, to erect such buildings as are needed, and to make such expansion of the work as would lift the university almost at once to her proper place among the first institutions of learning in the land. With such an income on which she might depend from year to year, a policy liberal and far-reaching in its aims and definite in its methods could be confidently adopted and steadily pursued. Let us once more call upon this great state by every consideration of policy and of duty, to make the university broad and powerful enough for the complete performance of the great work which we believe awaits her in the future.

All of which is respectfully submitted.

WILLIAM H. SCOTT, *President.*

I append the following statement of my own classes: In the first term I had a class in psychology consisting of 17 students, one in ethics consisting of 10 students, and one in logic consisting of 10 students. During the second term psychology was continued with a class of 16 students and logic with a class of 9 students. In the third term the first class had metaphysics, and contained 16 students, and the second had the history of philosophy, with 11 students.

The first-named class in each term consisted of the juniors in the courses in arts and philosophy, and the seniors in the course in science. The other classes consisted of the seniors in arts and philosophy. Each class met three hours a week throughout the year, except the class in logic, which met two hours a week.

WILLIAM H. SCOTT.

DEPARTMENT REPORTS.

DEPARTMENT OF MATHEMATICS AND ASTRONOMY.

President W. H. Scott:

DEAR SIR: I have the honor to submit the following report of the department of mathematics and astronomy, for the college year ending June, 1886.

The organization of classes in the departments was as follows:

Term.	Class.	Subject.	Instructor.	No. of students.	Remarks.
FALL.	I. Preparatory ...	Elementary Algebra..	Asst. Prof. Blocksom..	38	2 secti'ns.
	I. " ...	" " ...	Mr. McCoard ...	19	
	II. " ...	Plane Geometry ...	Prof. Comstock ...	29	
	II. " ...	" " ...	Mr. McCoard ...	29	
	Freshman ...	Higher Algebra ...	Prof. Comstock ...	43	2 secti'ns.
	Sophomore ...	Analytical Geometry ...	" " ...	25	
WINTER.	I. Preparatory ...	Elementary Algebra ...	Asst. Prof. Blocksom..	32	2 secti'ns.
	I. " ...	" " ...	Mr. McCoard ...	12	
	II. " ...	Solid Geometry ...	Prof. Comstock ...	21	
	II. " ...	" " ...	Mr. McCoard ...	26	
	Freshman ...	Analytical Trigonometry..	Prof. Comstock ...	28	2 secti'ns.
	Sophomore ...	Calculus ...	" " ...	20	
SPRING.	I. Preparatory ...	Plane Trigonometry.. ...	Asst. Prof. Blocksom..	21	
	I. " ...	" " ...	Mr. McCoard ...	26	
	Freshman ...	Spherical " ...	Prof. Comstock ...	25	
	Sophomore ...	Calculus ...	" " ...	17	
	Junior ...	Astronomy ...	" " ...	19	

Total number of enrollments in all classes ... 430
Number of students (no name counted twice) ... 172

In addition to the above regular college classes, I conducted during the winter term a volunteer class of seven members in the method of least squares.

The extension of our mathematical curriculum, to which I alluded in my last report, has been in part accomplished. Provision is now made whereby juniors in

the science course may pursue the study of certain branches of the higher mathematics. It is my intention for the present to confine the electives here offered, to those branches of mathematics which are largely applied in the physical sciences and the arts based upon them. A short course of mathematical study has also been opened to freshmen in the arts and philosophy courses, but this is still an inadequate provision for those students. I hope that the day is not far distant when equal opportunities for the study of mathematics will be presented to all students in the general courses of study of the university.

Since the date of my last report I have organized and I am now conducting a class in mathematical astronomy. This class consists of fourteen members, each of whom should receive instruction in the theory and training in the use of the commoner astronomical instruments, such as the sextant, theodolite, transit, and zenith-telescope. Such training is now impossible, as the only instrument possessed by the department which is suitable for the purposes of this class, a sextant and artificial horizon, while in itself a good and serviceable instrument, is a wholly inadequate provision for such a class. I desire to repeat with renewed emphasis the recommendation contained in my last report, that there be established upon the university grounds a small astronomical observatory for purposes of instruction. It should be borne in mind that what is here contemplated is not a large and expensive building, fitted with elaborate appliances for scientific research. A modest building, fitted with a few small but well-made instruments, will suffice for instruction in the general method of the astronomer's art and for the training of students in observations of precision. Such an observatory is as essential to proper instruction in astronomy as a laboratory to instruction in chemistry or physics. It can be built and equipped for the sum of $6,000, and I earnestly request an appropriation of that amount for the purpose.

Very respectfully,

GEO. C. COMSTOCK,
Professor of Mathematics and Astronomy.

Ohio State Univerisity, October 9, 1886.

DEPARTMENT OF PHYSICS.

President W. H. Scott:

DEAR SIR: I have the honor to submit the following statement of the work in the department of physics for the year ending in June, 1886.

The classes instructed were three in number. The second preparatory students formed one class, during the second and third terms. The second class was of sophomores, working through the year. The third class was in laboratory work, and was composed of seniors in engineering courses, and of optional and post graduate students. This class also worked through the three terms. The number of students enrolled in these classes was as follows:

Second preparatory	64
Sophomore	57
Laboratory	13
Total	134

Mr. J. E. Randall resigned his position as assistant March 1st, to accept a place with the Thomson-Houston Electric Light Co. His work was then divided between Mr. C. A. Marple and Mr. E. H. Mark, the latter giving instruction to the second preparatory class.

Some valuable pieces of apparatus were added to our equipment during the year. Among them may be named a pair of very fine Rowland diffraction gratings, a Hipp's chronoscope, a Wiedemann galvanometer from Edelmann, a Thomson galvanometer, and other electrical pieces from Elliott Brothers. In addition to these, several less important pieces were received from Koenig, Salleron, Dubozeq,

Browning, and other celebrated makers. These additions will be followed by others of the same grade during the coming year.

I desire to again call your attention to the need of a proper building for the use of the department. Our present rooms are inadequate, and are not well adapted to our work. It is now conceded that the most valuable training in physics is that obtained in the laboratory, and the smaller colleges are following the example set by the leading institutions in this and other countries in erecting laboratories especially adapted to such work. We are obliged to use our lecture rooms as rooms for laboratory work also, an arrangement which is for several reasons undesirable. Many students are obliged to work near each other, and are unable to give their work that close attention so necessary to the attainment of good results. Unavoidable noises distract them, and vibrating floors and walls continually disturb the adjustments of their instruments, making many exercises difficult, and some impossible. The best rooms we have are in the basement, and are poorly lighted, and worse in ventilation, and there is nothing better to be had in any of the university buildings. A suitable building is a necessity. I therefore urge the matter, and hope that it may be considered as a thing to be accomplished at the earliest possible day.

Very respectfully,

BENJ. F. THOMAS.

Ohio State University, October, 1886.

DEPARTMENT OF CHEMISTRY.

William H. Scott, President:

DEAR SIR: I herewith present this my fourteenth annual report of the chemical department of the university.

The number of students enrolled during the past year in the class of elementary chemistry was seventy one. The number in the analytical laboratories was twenty-eight. Total, ninety-nine.

The work done by these students was on the whole good, of better grade, perhaps, by those in the laboratory than in the elementary class. I am constrained to add that the time allotted to this study is not, in my opinion, sufficient for thorough work, and enter my protest against the action taken by the faculty at the close of the year whereby two-fifths of a term were taken from our working hours.

The facilities of the department for demonstrating the facts and for illustrating the theories in chemistry are steadily increasing in practical value. This is due partly to the fact that it has been found profitable to convert purchases made fourteen years ago into more useful goods, and partly to purchases defrayed from the general fund. The "conversions" above hinted at have about come to their possible limit, and hereafter we must not expect growth in this direction, unless from special appropriations or from donations.

Through the energy and zeal of my assistant, Dr. David O'Brine, the department has received (at a small charge for express fees and for bottles) several large collections of material exceedingly well-fitted to illustrate the lectures on organic chemistry, and also those upon pharmacy. We have as gifts from Parke, Davis & Co., and from Frederick Stearns & Co., of Detroit; from Allaire, Woodward & Co., of Peoria, Illinois, specimens of crude drugs amounting to several hundreds; and also from Mallinkrodt, of St. Louis, and from Powers, Wightman & Co., of Philadelphia, the products of such drugs (as the derivatives of opium, and the various barks), at least four hundred more, well-lodged in beautiful cabinets. The department is also obliged to Cobb, Armstrong & Co., of Cleveland, and to our fellow-citizens, Braun & Bruck and Kauffman, Lattimer & Co.

We have also received from Cosack & Co., Buffalo, and from the Photogravure Company, of New York, two fine suites of specimens illustrating the applications of chemistry to photography, photographic printing and lithography.

This enumeration shows that our material for illustrating the lectures on chemistry and its allied sciences has largely grown during the past year by the gifts of our friends. It will also receive large additions in the purchases made this year from the general fund. In each of the natural sciences it may be truly said that "seeing is believing," but in none with more convincing effect than in chemistry. Our means of illustration should in time include every substance that could by any possibility happen to be mentioned by the then lecturer.

Now, upon our part it is only decent that we should make a proper display of gifts thus sent gratuitously to us, and invite others. So far we have, as I think, kept our implied promise, and I hope the board will see its way clearly to supplementing these gifts by purchase so as to make ours a "museum of chemistry and its applications" full and complete. We have enough shelving for present needs, but the day is not far distant when it will be imperative upon the board to make our now unused attic the depository of the "curios" of such a museum.

The board took action, as I understand, for making the lecture room "sound proof" as regards the assaying room, but nothing has been done to bring about this very desirable end.

I renew my request for the early purchase of Liebig's Chemical Annals and for a further increase in our department library. I think it a noteworthy fact that our little case of books is in almost hourly requisition every day, and has proven itself to be one of the most important adjuncts to the teaching of chemistry that we have. I should be glad to have a collection of books dealing with the history of chemistry and of alchemy, or, in other ways showing the growth of our science and the interesting accidents and incidents connected therewith. As regards these items we have almost nothing on our shelves.

The year of study must, on the whole, be regarded as a profitable one. Dr. O'Brine has, as in former years, taken charge of the laboratory accounts and of the details in laboratory equipment. He has also taught the second year laboratory students in stoichiometry, and with his usual diligence and success.

With great respect,

SIDNEY A. NORTON.

Ohio State University, October 1, 1886.

DEPARTMENT OF GEOLOGY.

President W. H. Scott:

DEAR SIR: I herewith present my report of the department of geology for the last academic year.

The number of students enrolled in the several classes of the department during the year was 100. These students were distributed among the classes named below, as follows:

General geology, junior class, 2 terms	36 and 32
Economic geology, junior class, 1 term	10
Physical geography, 1st preparatory class, section A, 1 term	43
" " " " B, 1 term	11

Deducting students counted twice in this enumeration, the total number pursuing studies in my department was 90.

The necessities of the programme of the fall term of last year seemed to require that the second section of the class in physical geography should be placed at the same hour with general geology, and I was therefore unable to meet this section. I found, however, among our older students, a competent instructor for it, viz.: Mr. L. Westfall, to whose interest and fidelity in the work of instruction I desire to

testify. This year the programme is so arranged that I am able to meet both sections of the class, as well as my regular college class in general geology.

The changes introduced into the curriculum at the close of the last year very materially affect this latter class for the present year. The subject of geology is now made optional for students in the arts and philosophy courses, and moreover, it is not to be elected by them until their senior year. Inasmuch as the present seniors have already taken geology, the new arrangement leaves my present class composed exclusively of juniors in the scientific and engineering courses. The class is, accordingly, less than half its usual size.

The geological museum has received a number of valuable additions during the last year. The most important of these additions consist of samples of drillings from the deep wells that are being sunk at the present time in almost all portions of the state. The list already embraces more than 1,000 separate specimens, and represents nearly, or quite, 100 wells. No specimens have been admitted in regard to whose authenticity there was any question. The specimens come from every section of the state, and they constitute in themselves a geological collection of rare interest and value. It is not at all probable that the present opportunity of making such a collection will be continued very long throughout the state, and consequently these sets of drillings will probably stand alone as an authentic record of our subterranean geology, and will acquire a constantly increasing interest and value in this connection.

The museum has also, during the year, come into possession of the relief map of the state, prepared for the New Orleans exposition, with a large outlay of time, money, patience, knowledge and skill, by Mr. W. C. Jones, of Cleveland. This is the first map, so far as I know, that has undertaken to represent on so large a scale, viz.: four miles to one inch, the relief of the state. While all such work is certain to advance by the method of progressive approach, so that new attempts, based on this representation, will attain greater accuracy, it is not at all certain that any attempt will very soon be made on so large a scale as that which this map displays. In any case, the first undertaking in such a field will always command an interest of its own. The map constitutes a most valuable accession to our means of representing the physical geography and geology of Ohio.

The work of entering the lists of specimens composing the museum in the department record will be entered upon at once, and will be prosecuted as rapidly as practicable, but the labor is a large and onerous one, involving the making of over 20,000 distinct entries, and it will necessarily occupy considerable time.

In my report of last year, I urged the desirability of securing, as soon as practicable, a suitable building for the geological museum. I repeat here the suggestions made in regard to this subject, inasmuch as these statements carry a compact presentation of the case in hand:

"The truth is that the museum needs a building for itself, and I trust that the time has now come when we may set about the work of providing suitable quarters for it, with good promise of success. We must distinctly recognize the fact that suitable provision will require considerable outlay. It is easy to lay down a number of points that should be observed in the construction of a museum building. (1) It should be built of Ohio stone. (2) It should be fire-proof. (3) It should furnish one example on the college grounds of a building properly constructed, heated and ventilated. (4) It should be large enough to provide for the natural growth and expansion of such a collection as it would contain.

"In regard to the first point, it is only necessary to say that our own state furnishes the largest amount, and, in many respects, the finest quality of building stone of any state in the union. Our museum should be made a proper representative of this great interest. Several of the leading varities should find place in its construction. I have but little doubt that the public spirit and business sagacity of our quarrymen would make it possible for us to obtain the best building stone of the state on unusually favorable terms. Competition might well arise among the great centers of production as to finding places in such a building, inasmuch as it would form a most conspicuous and permanent advertisement of the materials used in it.

"It needs no argument to show that a building designed for such use should be fire-proof, but in addition to the obvious reasons for this requirement, I may add that if a proper place were furnished by the university, adapted both to the proper

display and permanent preservation of the materials entrusted to it, valuable collections of fossils and minerals would be sure to come to us. There is one cabinet of fossils in the state, to-day, on which many thousands of dollars and many years of enthusiastic labor have been spent, and which would be an ornament to any museum in the world. That I believe we could confidently count upon, if we could offer a safe and suitable repository for it."

I was glad to learn that the proposition, as stated, was favorably viewed by the trustees, as was shown in their making it prominent in their application to the state legislature for special appropriations. I hope that the subject will continue to command as favorable consideration. The need is constantly increasing, and I trust that the financial condition of the state will warrant an earnest and successful application to the legislature for the appropriation necessary for this work.

Several architects of Columbus and elsewhere made inquiry, after the publication of the report, in regard to the contemplated building. To all who inquired, I furnished such facts as I had at hand in regard to the purpose and character of the building desired, and as to its probable size and subdivisions. One of these architects, Mr. Elah Terrell, of Columbus, gave a good deal of attention to the subject, and finally prepared elaborate plans and elevations of a building adapted to this purpose.

Before deciding on the details of any plan of construction, I should count it necessary to visit several of the best arranged geological museums of the country, so as to make sure that we were availing ourselves of the best and latest experience in this line of work.

I would extend these statements and arguments further, if I thought that I should be heard for my "much speaking," but I am sure that the board of trustees, and yourself also, fully appreciate the necessities and interests involved, and stand ready to do all that seems practicable in securing the results desired.

I am very anxious to continue the present, or some similar arrangement with the state, by which I shall be able to devote six months of the year to the geological survey of Ohio, especially while the important developments of the present are going forward. The trustees have kindly granted me the necessary freedom for several years past. I trust that they will be willing to continue the arrangement on their part, in case the legislature makes the necessary provision for geological work.

Very respectfully,

EDWARD ORTON,
Professor of Geology.

DEPARTMENT OF BOTANY AND HORTICULTURE.

President W. H. Scott:

DEAR SIR: The undersigned, professor of botany and horticulture, has the honor to submit the following report of the work done and progress made in the department during the academic year 1885–86.

The whole number of students receiving instruction in botany and horticulture during the year has been 102. The following statement presents the subjects taught, together with the number of hours devoted to each, and the number of students enrolled in each class:

Course of instruction.	Number of students.	Lectures per week.	Hours of laboratory or field work.
Fall term.			
Economic and applied botany	9	4	2
Compositæ and gramineæ (sophomores)	29	1	2
Special botany	1	1	5
Winter term.			
Vegetable physiology and histology	7	3	2
Cryptogamic botany (sophomores)	26	2	1
Special botany	1	.....	5
Spring term.			
Structural and systematic botany	57	3	2
Floriculture and landscape gardening	6	4	1
Advanced botany (gymnosperms and special groups) (sophomores)	27	1	2
Medical botany	2	.....	4

I have classes in the following subjects the present term:

Economic and applied botany	10
Compositæ and gramineæ	28
Botanical laboratory (special)	2

The instruction given has consisted of lectures, laboratory practice and field work. The general plan pursued has not differed materially from that of previous years, except in an increase of laboratory and field work. The different courses in the department, twelve in number, are so arranged as to form a logical and comprehensive study of plant-life.

MEANS OF ILLUSTRATION.

Some additions have been made to the collection of illustrative material during the year. Several hundred species of dried plants have been added to the general herbarium, among the most valuable of which is a collection of fungi presented by Professor W. A. Kellerman, of the Kansas Agricultural College, and a valuable series of grasses of North America, from Dr. George Vesey, of the U. S. department of agriculture. Over one hundred species and varieties of living plants have been added to the stock of the green house and gardens. Minor additions have been made to the general museum, and to the apparatus for laboratory work.

An assortment of horticultural hand tools, budding knives, grafting implements, pruning shears, etc., has added much to the usefulness of this branch of the department.

THE EXPERIMENT STATION.

Under the new arrangement, whereby the professor of agriculture is the director, and the professor of horticulture the vice-director, the experiment station bids fair to be of still greater value as a means of training for students. It needs no special argument to prove that the station has won us friends among the farmers of the state, has silenced unfriendly criticism, and has increased the number of agricultural students.

The success that has attended the labors of the station has been largely due to the excellent facilities afforded by the university for carrying on the work.

If all the members of the faculty of the schools of agriculture and veterinary science should take a genuine interest in the work of the station, much more can be accomplished in the future than has been done in the past.

NEEDS OF THE DEPARTMENT.

1. The most urgent need is a propagating house. For the use of the gardens, the campus, and the main green house, plants must be continually propagated, both from seeds and cuttings. It is impossible to use the green house as a conservatory and for propagation at the same time.

Plants are now propagated in a very unsatisfactory way by means of a series of unsightly hot-beds situated on the slope just south of horticultural hall. If these could be replaced by a neat propagating house seventy-five or eighty feet in length, by twenty in width, it would add greatly to the efficiency of the department. This building could be heated by the boiler which now heats the green house, and would require no additional help for its proper management. A careful estimate shows that it can be built for five hundred dollars. The want of such a structure has seriously impaired the usefulness of the plant already at hand.

It is not an imaginary requirement, but an absolute and imperative need.

2. Another need is a series of botanical models, maps, and charts for illustrating the structure of the different parts and organs of plants.

An appropriation of one hundred dollars would meet the most urgent demands under this head.

ACKNOWLEDGMENTS.

Mr. W. S. Devol, who has been the efficient botanist of the experiment station for the past three years, has rendered timely and valuable assistance to the department in various ways during the past year. His place is now filled by Mr. Moses Craig, who is making a specialty of botanical studies.

Mr. W. J. Green still remains as superintendent of the gardens. I take great pleasure in bearing witness to his ability and fidelity.

Respectfully submitted.

WILLIAM R. LAZENBY.

Horticultural Hall, Ohio State University, Nov. 2, 1886.

DEPARTMENT OF ZOOLOGY AND COMPARATIVE ANATOMY.

Wm. H. Scott, President:

DEAR SIR: I have the honor to submit my twelfth annual report:

The enrollment in my various classes, during the collegiate year recently closed, is as follows: Physiology class of the shorter course in agriculture, eight; freshman physiology, sixty; sophomore zoology, twenty-eight; laboratory students, fifteen; the total enrollment was one hundred and eleven; five students being enrolled in more than one class.

The recent change in our courses of study, in virtue of which a large number of students is now required to perform the work in practical anatomy and physiology, which has hitherto formed a portion of the elective work in my department, renders all the more pressing the need which I have urged in previous reports of a more complete equipment of this department. In view of the fact that this work is now required, it is our imperative duty to furnish all necessary appliances for making the course as thorough and as practical as the time and attainments of the students will permit, while the great increase in numbers, under the new order, renders absolutely necessary the extensive duplication of many appliances. Unless, therefore, we would be compelled to recede from the deliberate and well-considered action of the faculty, the equipment of the department should be made adequate in this respect without delay.

What is true of the required work of the department is no less true of its elective work. Few important additions have been made to its equipment since a time when the number of collegiate students was less than half what it is at present, and it has never been more than barely adequate for our immediate and most urgent demands. It is at present, therefore (leaving out of consideration the fact that a well-ordered laboratory should recognize in its equipment the constant improvement going on in the appliances of biological research), wholly inadequate.

The claims made for this department in previous years are certainly no less forcible now than in the past; the new needs that have arisen from the changes referred to in the required work, render them doubly urgent. I trust, therefore, that you will join me in urging upon the trustees that they ask the legislature for an appropriation of $5,000 for the department of zoology, comparative anatomy, and physiology, as one of the most pressing needs of the university.

All of which is respectfully submitted.

ALBERT H. TUTTLE,
Professor.

Ohio State University, October 1, 1886.

DEPARTMENT OF CIVIL ENGINEERING.

President W. H. Scott:

DEAR SIR: I respectfully submit the following report for the department of civil engineering for the year ending June, 1886.

The number of students enrolled was:

Fall term, 1885.

Sophomores, land surveying	15
Juniors, civil engineering	9
Seniors, sanitary engineering	4
Total	28

Winter term, 1886.

Sophomores, descriptive geometry	9
Juniors, lettering, platting and tinting	11
Seniors, shades, shadows and perspective	4
" plans and specifications	2
Extra class in stereotomy	2
Short agricultural course, field measurements	10
Total	38

Spring term, 1886.

Juniors, strains in framed structures	11
Sophomores, juniors and seniors, railroad surveying	22
Extra class in lettering, platting and tinting	1
Total	34

During the year 45 persons pursued studies in the department.

The additions to the equipment during the year have been: A "blue print" room, two steel tape measures, one 50 feet and one 400 feet long, two models of arches, a case for books and papers, and some shelving for models.

Two models have been made by students and left for the department.

The things most needed now are cases for the instruments, drawing-tables, models and pictures of engineering work, and, of course, books of reference.

At its last meeting I invited the Ohio society of surveyors and civil engineers to make this department a place of deposit for its library, the library to be returned to the society when desired, but while here to be used, under proper rules, by the engineering students. The proposition was accepted, and the books, maps, papers, blanks, etc., are now in the department. The collection, although not large, proves to be very valuable and is frequently consulted by the students.

Very respectfully,

C. N. BROWN,
Assistant Professor.

Ohio State University, October, 1886.

DEPARTMENT OF MECHANICAL ENGINEERING.

W. H. Scott, President:

DEAR SIR: I respectfully present the following report for the department of mechanical engineering, for the year ending June, 1886:

First Term—Students in analytical mechanics, 21. Strength of materials, 6. Thermodynamics, 3. Mechanical laboratory, 19.

Second Term—Mechanics, 4. Technical drawing, 4. Prime movers, 2. Senior laboratory, 2. Mechanical laboratory, 19.

Third Term—Mechanism, 4. Machine design, 2. Millwork, 2. Strength of materials, 9. Mechanical laboratory, 18.

The machinery and appliances mentioned in my last report as having been ordered, are now received and are in place. Recent orders have been given which consume the entire balance of the legislative appropriation of $2,500 for that purpose. We thus add one new engine lathe, one universal grinding machine, one surface grinding machine, one tool grinder, one oil testing machine, three measuring machines, and one weighing scales, besides quite a variety of gauges and tools of precision. Also, shafting has been put up extending into the front room for operating testing machines; the oil tester being already connected with it.

These appliances greatly extend our means for illustrating, and making applications of mechanical practice. We now have the means for accurately measuring, and for accurately doing fine machine work. Students are given exercises in the use of these where pieces are carefully wrought out and accurately measured. One measuring machine reads direct to the ten-thousandth, and a few readings will average within the fifty-thousandth of an inch.

Among the further much-needed appliances may be mentioned a testing machine for materials of greater capacity as to force exerted and as to size of specimen. The present testing machine for this purpose is too limited for our purposes. An Olsen testing machine of about 100,000 lbs. capacity would serve very much better, the cost of which would be about $800.

Individual kits of tools for the lathes are also much desired, and of sufficient number to provide each student with an outfit which he is to have charge of while practicing with his lathe. The need of this is apparent from the fact that now, with tools largely in common, when a student is found using a bad-shaped tool the defect cannot be charged to him because it may be due to the carelessness of his predecessor in the use of the tool. It should be explained here, perhaps, that these lathe tools are formed from bits of steel forged to shape and ground, for the cut. A vast

difference not only in the tool, but in the work turned out, is made by correct or defective grinding. Means for locating these defects with greater certainty are very desirable, so that they can be corrected promptly and efficiently.

Very respectfully,

S. W. ROBINSON.

Ohio State University, October 27, 1886.

DEPARTMENT OF MINING AND METALLURGY.

President W. H. Scott:

DEAR SIR: I respectfully submit the following report upon the work in the department of mining and metallurgy for the past year ending June 23, 1886:

The advanced work of the department comprised classes in metallurgy, assaying, mining engineering, ore-dressing, and blow-pipe analysis and determinative mineralogy. I also teach a freshman class in mineralogy, which forms part of the general college courses.

The number of students in the above special classes was as follows:

Metallurgy	10
Assaying	3
Mining engineering	4
Blow-pipe analysis	8
Ore-dressing	4
	29

This list includes a number of students who were enrolled in more than one of the classes. Deducting these duplicates, there were 16 students in the special work of the mining engineering course.

The class in freshmen mineralogy numbered 44, so that the whole number of students in the various classes of the department during the year was 73.

Of the senior class, four received the degree of engineer of mines.

I would respectfully call attention to the fact that while the department of mining compares favorably with any of the technical departments in the university, both in the number of students and in the proportion of graduates, the expense of the department to the university is almost nominal. The salary of the professor in charge is in large part paid by the fees received for chemical work from the state board of agriculture and state geological survey. From the same sources came all the current expenses of the laboratory in which all the experimental work of the department is carried on.

In view of these facts, I hope the appropriation for the department for the current year may be liberal. There are various things that are needed to facilitate the work of teaching in the department The consumption of supplies by students in the assay laboratory amounts to nearly $100 a year, which leaves nothing whatever for the additions which, from time to time, should be made to the equipment, much of which is wearing out. $300 for "current expenses" would allow me to vastly improve the condition of the department in a number of little things that we at present manage to do without, but not without damage to the work of the students.

The appropriation for framing the projet drawings is partly expended, and a number of the last year's drawings are now being framed. These add much to the attractiveness of the rooms.

Respectfully submitted.

N. W. LORD,
Professor of Mining and Metallurgy.

Ohio State University, October, 1886.

DEPARTMENT OF DRAWING.

W. H. Scott, President:

DEAR SIR: I respectfully submit the following report of the department of drawing for the year ending June, 1886:

First Term—Students in freehand drawing, 57. Projection drawing, 24. Special drawing, 2.

Second term—Students in freehand drawing, 54. Descriptive geometry, 13. Special drawing, 1.

Third Term—Students in freehand drawing, 46. Projection drawing, 17.

The total enrollment, deducting those twice counted, was 208.

The work of the year was very satisfactory, both in regard to the interest shown by the students and the quality of their work.

The students are required to leave a specimen of their work at the close of the year, so that in the course of a few years the department will have a good showing of its own work; and as some very fine pieces of work are left, I would deem it proper to ask a small appropriation for frames, in order to hang and preserve them.

The department is in urgent need of the following:

1st. Suitable drafting tables for the work in mechanical drawing As the tables at present in use are unfit for the work, and as many students have valuable instruments, there should be some way of locking them up securely and separately, which could be done with proper tables. The tables could be built in the city for $8 or $9 each, from drawings which I would gladly furnish. One such table should be provided for each student.

2d. As the time given to descriptive geometry is short, the work would be greatly facilitated by the addition of a set of J. Scroder's descriptive geometry models; in fact, they are almost indispensable. They would also be very valuable in the projection drawing work. The cost of a set would be about $125.

3d. As the copies for freehand drawing have been in use for some time, they have become worn so that new ones are needed. Additional ones should also be furnished for flat copy shading-work.

To supply this demand about $25 would be necessary.

4th. The room receives its light from three sides, and as it is necessary to have the light from one direction when shading from models and plaster casts, the windows should be provided with shades of a neutral color which roll from the bottom upwards, in order to control the direction of the light.

Very respectfully yours,

JOS. N. BRADFORD.

Ohio State University, October 9, 1886.

DEPARTMENT OF AGRICULTURE.

President Scott:

DEAR SIR: The following report of work for the past college year in the department of agriculture is respectfully submitted:

Two classes in agriculture and one in veterinary medicine have had daily recitations through the year. The first class in agriculture made a study of soils, fertilizers, drainage, fences, farm buildings, implements and machinery, crops, tillage, and farm accounts. The second class was occupied with the study of farm stock of all kinds, and of what belongs to their successful management. The number of students in these classes was seventeen.

The veterinary class numbered twelve, and was composed in part of young men whose purpose was to obtain a thorough knowledge of the sanitary management of stock in order to be able, so far as possible, to prevent disease and its consequent losses. They made a careful study of animals, both in health and in disease, and have endeavored to learn the nature of disease, its symptoms and varieties, and how to discriminate between its different forms, and especially to ascertain its causes. Another portion of the class was made up of young men who expect to follow veterinary medicine and surgery as a profession, and to pursue here the course of study offered in the veterinary department.

At the beginning of the past year sixteen of the new students registered for the short agricultural course, then but recently established. At the opening of the present college year the number of new students registered for this course is twenty. So prompt a response to the offer of a short agricultural course, inspires the hope that when the opportunities afforded by it are more generally known, the number who will desire to avail themselves of its benefits will be very largely increased. In two years, a bright young farmer, who has secured a fair common school education, may obtain an introduction to all those branches of science which especially relate to agriculture. And at the same time he will have an opportunity to become practically familiar with the methods pursued and the results obtained at the Ohio experiment station, which is located upon the university farm.

Yours sincerely,

N. S. TOWNSHEND,
Professor of Agriculture.

Columbus, October 30, 1886.

DEPARTMENT OF VETERINARY SCIENCE.

W. H. Scott, President:

SIR: I have the honor to submit here my annual report. When at the beginning of the fall term of last year the veterinary department was opened and the course of studies arranged, the clinic and the branches of veterinary science to be taught in the fourth or senior year were assigned to me. Consequently, as there were no seniors, but only irregular students, or students who had been in other departments, who would take advanced studies and come into my classes, the latter, necessarily, were small. In the fall term I lecture on contagious, infectious, and on epizoötic diseases to a class of five, and on surgical diseases to a class of four students. In the winter term forensic veterinary medicine was taken up instead of contagious, infectious, and epizoötic diseases, and as one of the students of the fall term, a graduate of the agricultural and mechanical college of Virginia, accepted a

call as assistant professor of agriculture in said college, and another one had failed in his examinations and did not return, the number of students in this class would have been reduced to three, but a new student came in, and the class thus contained four students during the winter. The study of surgical diseases was continued during the winter term, and the number of students remained the same as in the fall; two old ones had left, and two new ones had came in. In the spring term the study of surgical diseases, which had been finished in the winter, was followed by principles of horseshoeing and veterinary obstetrics. In this term one new student came in, and the class would have consisted of five, but it was finally reduced to three, because one was called home by the sickness of his father, and another one left at the middle of the term on account of financial difficulties. The study of forensic veterinary medicine, not quite finished during the winter, was continued during the first weeks of the spring term, and then followed by toxicology. This class, which at the end of the winter term consisted of four students, was finally, at the close of the spring term, reduced to one, because one had failed in his examination at the end of the winter term, one had been called home to take care of the farm, and another, as already mentioned, left at the middle of the term on account of financial difficulties.

A free veterinary clinic has been held one hour every week day during the whole academic year, so as to afford the students an opportunity to gain practical experience. Over one hundred patients, affected with various internal and external diseases, have been presented for treatment. On account of these patients surgical operations have been performed. No deaths occurred, and all the animals treated in the clinic either partially or fully recovered. Their number, there can be no doubt, would have been much larger, if the existence of the free clinic and its advantages incidentally offered to the public, had been generally known. Among the number of cases treated were some very interesting ones. I will only mention one of partial paralysis caused by pressure upon the medulla oblongata, and a fistula leading into the colon. Both horses, after having been in treatment a few weeks, were discharged cured, and are perfectly well at present. Quite a number of sick horses and several head of sick cattle have also been examined and been treated by the class at the premises of their owners, and several surgical operations have either partly or wholly been performed by the members of the class.

At the beginning of the present (fall) term two of the old students returned, and four new ones came in. Several others signified their intention of coming—at least seven or eight corresponded with me, and others with yourself and Dr. Townshend; but it seems some of them did not feel able to comply with the requirements of admission, and others preferred to take a more superficial course elsewhere, and thus complete their studies in two terms. Of the old students returned, only one is at present entitled to senior standing, and as he took last year all the senior studies and passed in his examinations, there was no class prepared to take senior or fourth year's studies at the beginning of this term. Last year the study of veterinary anatomy (comparative and descriptive anatomy of domestic animals—horse, ox, sheep, pig, and dog) was insufficiently provided for, so this year, having no fourth year's branches, except the clinic, veterinary anatomy was assigned to me, and is now taught to a class of six students. It was also found that some other minor branches, for want of teaching force, could not otherwise be given as fully as they deserve to be, and in these I have now a class of four students.

The veterinary clinic opened this fall with bright prospects. Last year the people, it seems, were ignorant of its existence. This fall, however, it was advertised in the papers, and several patients are coming nearly every day. Up to date thirty-five horses have received medical or surgical treatment, as the cases required, and no deaths, so far, have occurred. The building for the clinics, too, is now in a much better shape than last year, and its present condition enables us to keep diseased horses or cattle in our stable for treatment. The veterinary dispensary, too, is in full operation, and not only enables us to furnish the necessary medicines for our patients, but also affords an opportunity to the students to receive practical instruction in the compounding and preparation of medicines. Since the beginning of this term nearly all the medicines used have been prepared by the students. A few more instruments, at a cost of not exceeding $50, will be needed.

Having to teach anatomy you will allow me to point out what is required to make the study of that most important branch of veterinary science as thorough as it ought to be. In the first place, the building erected for anatomical purposes must be provided with a good drain or sewer, with water, with gas, and with a stove or

some other means of heating. Without a drain and without a sufficiency of water anatomical preparations and dissections cannot be made, because without them the strict cleanliness necessary cannot be preserved, and the place soon would become a nuisance. Besides that, the stench, in a very short time, even in midwinter, would become so great as to make any work impossible. Further, as the building is none too large for the handling of the carcass of a horse or of any other large animal, the partition must be taken out and the whole building be given up for anatomy work. Secondly, suitable material must be provided. Old emaciated horses—the best material to be had—and occasionally some other animal, afflicted, perhaps, with an incurable ailment, can be bought very cheap, particularly at the beginning of the winter. Hence, an appropriation sufficient to enable us to buy such suitable material whenever there is a chance, will be needed. The products of the anatomical work, such as skeletons and other preparations, can be made in such a manner as to make them worth more than twice as much as the money thus expended amounts to, and can be turned over to the veterinary museum. To do this, however, some implements and some other material, for instance, a large iron kettle, such an one as is required to boil the meat off the bones of a horse or an ox, a few drills and plyers, some brass wire, iron rods, and foot-boards for the skeletons, will be needed. Two ends are thus gained at the same time. The veterinary museum will receive valuable specimens, and the students, while assisting in putting up skeletons, and making other anatomical preparations, will receive practical lessons in anatomy, which more than anything else will make them familiar with the structure of the animal organism. A thorough and accurate knowledge of the anatomy of an animal organism can be obtained only by studying the single parts as they exist in nature, and not by charts and imitations, valuable auxiliaries though they may be. Hence, not only skeletons but also other preparations, for instance, of muscles, blood vessels, nerves, etc., are requisite to give thorough instruction in anatomy, and are needed as a means of illustration in the lectures on myology, splanchnology, angiology, neurology, etc. To make such preparations, however, requires much time and labor, and therefore a prosector is needed. Last term I asked for an appropriation of $100 for a prosector to be employed. Probably this appropriation has been made; if not, I very respectfully ask again to allow that sum for the purpose stated. The prosector not only would have to make the preparations to be used in the lectures, but also have to superintend the anatomical work done by the students. Mr. Mark Francis would be a suitable person to be employed as prosector.

This money, and also that to be spent for the purchase of material and for the necessary tools, etc., if nothing else is available, might be taken from the fund for the veterinary museum, because full value in skeletons and other permanent preparations can and will be returned to the latter. Moreover, I think it is far better to prepare the specimens intended for the museum in our own veterinary department than to purchase them at high prices elsewhere. If they are made here, they are on that account of more interest and therefore more valuable, and at the same time cheaper.

The veterinary course, at present, is four years, or three years for students who come well prepared, and this is what it ought to be, because thorough instruction in all the various branches of veterinary science cannot be given in a shorter time. But a student who studies four years in a college or university, and satisfactorily passes his examinations, should receive a suitable degree. If no degree is conferred, but very few young men able to comply with the requirements of admission will be willing to take a four years' course, especially as in several other institutions a degree can be obtained in two *terms*. I therefore ask that in our institution the same degree be conferred upon our veterinary students on the completion of a full course as that given in the University of Pennsylvania and in Cornell University, New York, viz.: doctor of veterinary medicine. A degree of V. S., as has been proposed, is, to say the least, of very doubtful value in the state of Ohio, because in this State there is no law whatever that prohibits anybody from calling himself a veterinary surgeon. If the degree of M. V. D. (*medicinal veterinarian doctor*) is given, more well qualified young men will come and be willing to take a full course; if not, their number will be few, besides that the conferring of such a degree will tend to raise the study of veterinary science to the same dignity as that of human medicine. Still, I do not expect that the number of students willing to take a four years' course will ever be very large, at least not during the next few years, but I feel confident that a large number will come, if at the same time a short course, corresponding to the short agricultural course is established for the benefit of such young men as desire to become stock-breeders. In this course, if established, no degree should be given, but

only a certificate bearing testimony that the holder has pursued certain studies and passed a successful examination therein. This course should embrace most of the fundamental, but none of the advanced studies, except, perhaps, contagious infectious and epizootic diseases, principles of horse-shoeing and veterinary obstetrics.

When last summer the Ohio agricultural experiment station was organized, and more closely connected with the Ohio state university, I was appointed veterinarian of the station. As such, I have, since August, not only answered several inquiries in regard to diseases of animals, but also undertaken experiments for the purpose of ascertaining the true cause or causes of some infectious diseases, with a view of devising rational and effective means of prevention. The principal line of experiments, commenced in August, was undertaken for the purpose of ascertaining the real cause of swine-plague or so-called hog-cholera. This investigation, not yet completed, necessitates considerable microscopic work, and very careful observation and experimentation; it therefore requires nearly all my time not spent in the class-room and in the preparation of my lectures. The results so far obtained are already very interesting, and, I trust, will prove to be of great practical benefit to the swine industry of the country, when completed. But not only this, the work and the experiments themselves, while going on, are very instructive to my students, and give them an insight into the nature and the working of the morbid process of infectious diseases, for I not only inform them of what is done, but require them to assist me in my work.

Two other lines of investigation, one in regard to worm diseases of sheep, but particularly in regard to the stomach-worm of sheep, strangylus contortus, and one in regard to the vitality of bacillus anthracis, if shut off from air, light, moisture, and any nutritive medium, have been closed, at least for the time being. As to the former, a report has been handed in to the director of the experiment station, and as to the latter, a report is in course of preparation.

Very respectfully submitted.

H. J. DETMERS.

Ohio State University, October, 1886.

DEPARTMENT OF AGRICULTURAL CHEMISTRY.

W. H. Scott, President:

SIR: The undersigned respectfully submits the following report of the department of agricultural chemistry for the year ending June 23, 1886.

The number of students enrolled in the class in agricultural chemistry of the short course was as follows: Fall term, 17; winter term, 13; spring term, 11.

Besides this class there were two students in the fall term and one in the spring term doing advanced laboratory work in veterinary materia medica and toxicology.

The lecture-room work of the class in agricultural chemistry embraced the elements of chemistry, and the chemistry of the non-metals for the fall term, organic chemistry for the winter term, and the applications of chemistry to agriculture for the spring term.

The laboratory work of this class consisted of a complete course in qualitative analysis for the fall and winter terms, and the quantitative analysis of salts, minerals, manures, fertilizers, water, and feeding stuffs for the spring term.

The only improvements to be mentioned are the building of a specimen case in the lecture-room, a small book-case, and the purchase of some additional apparatus.

Besides the class work in this department, chemical investigations have been carried on in the following directions:

1. Analysis of feeding stuffs, as beets, mangel wurzel, carrots, corn-fodder, oat hay, oat straw, linseed meal, old and new process; white and yellow corn, oat hulls from oat meal manufactory. (See reports Ohio agl. exp. station, 1884, 1885 and 1886).

2. Analysis of manures and fertilizers. (See reports Ohio agl. exp. station, 1884, 1885 and 1886).

3. Analysis of drinking water. (See Ohio agl. exp. station reports, 1884, 1885 and 1886).

4. On the microscopic examination of butter and its adulterations. (See proceedings American society of microscopists, 1886. Ohio agl. exp. station reports, 1885 and 1886.

5. Experiments with soil, devised to determine the wanting ingredients of the soil for farmers in all parts of the state, in order to guide them in the purchase of commercial fertilizers. (See reports Ohio agl. exp. station, 1885).

6. Analysis of muck, with directions for making the bed fertile. (See Ohio agl. exp. station report, 1886).

7. Analysis of cheese, full milk cheese and Chicago flats. (See report Ohio agl. exp. station, 1885).

8. Chemical analysis of butter, 69 specimens were examined, 37 of which were adulterated, and 32 genuine. (See report dairy and food commissioner, 1886).

9. Vinegars. Of 12 commercial vinegars sold as cider or fruit vinegar, 2 specimens were found to be genuine, and 10 specimens fraudulent. (See report dairy and food commissioner, 1886).

Very respectfully,

H. A. WEBER.

Ohio State University, October 20, 1886.

DEPARTMENT OF PHARMACY.

President W. H. Scott:

DEAR SIR: I enclose herewith the first annual report of the department of pharmacy. The year began with a class of ten, which number was considered encouraging. The work throughout the year has been satisfactory. The students have taken a decided interest in the laboratory work in particular, having had constant practice in the preparation of pharmaceuticals, and having worked in the quantities usually prepared by the dispensing pharmacist. As this work is usually conducted in laboratories of this kind, it is in such small quantities as will not clearly illustrate the characteristic action of the various drugs. In this we have a decided advantage.

The department is indebted to Professor Weber for kindness shown in permitting the use of his laboratory, and in the loan of apparatus; also, to Professor Norton, who has placed his cabinet at our disposal and frequently aided by the loan of apparatus, etc. I would urge the necessity of providing permanent quarters for this department, and in view of the probability of its rapid growth it would seem wise to make such provision on a scale sufficiently large to meet any reasonable demand. Already the space provided by Professor Weber is insufficient, and no more is available.

We have a moderate supply of the more common pharmaceutical apparatus, and a small amount of material, but as we advance much more will be needed. Considerable headway has been made in the collection of a cabinet of Galenical preparations made by the students themselves, and it is the intention to make this complete as rapidly as possible.

With the request that you will bring the needs of this department to the attention of the board, I remain yours truly,

GEO. B. KAUFFMAN.

Ohio State University, November 5, 1886.

DEPARTMENT OF HISTORY AND ENGLISH.

William H. Scott, President:

SIR: I have the honor to submit the following report of the department of history and English language and literature, for the year ending June 23, 1886.

The number of students enrolled in the various classes in the department was:

HISTORY.	1ST TERM.	2D TERM.	3D TERM.
English and modern European (senior)	3	2	2
Mediæval (junior)	10	7	5
United States Constitution	...	11	9
Preparatory, United States	19	26	3
Preparatory, general	20	9	21
Totals	52	55	40
ENGLISH.			
Advanced literature	13	10	10
Anglo-Saxon and English literature	16	11	11
Rhetoric (sophomore)	24	22	18
Preparatory, rhetoric	9	23	19
Totals	62	66	58
POLITICAL ECONOMY	18	17	15

Deducting names twice counted, the total enrollment in the history classes was 122, as against 108 in the year previous; in the English classes 104, as against 90 the previous year. In addition to the foregoing work, one hour each week was devoted to rhetorical exercises, requiring the presence of all seniors and juniors. The second preparatory class was also required to devote one hour a week to composition and essay writing.

The size of the advanced classes in history is explained by the fact that as the curriculum stood during the year, students in one course only were given any opportunity to enter these classes. By the changes in the curriculum made by the faculty at the close of the year, this work in advanced history was thrown open to seniors and juniors in the arts, philosophy and science courses. This change, the desirability of which was shown in my last report, has already resulted in a largely increased enrollment in the history classes for the present term, a fact which, as the work is still only an elective for many of the students, is proof that the demand for historical studies was not before met. By the same change I am now enabled to offer to our advanced students a new course designed for original study and research in the institutional and financial history of the United States.

The courses in English have also been remodeled and better adapted to the needs of the students. The most important change has been the reshaping of the freshman studies, so that every freshman, in whatever course he is, receives a year's training in theoretical and practical rhetoric.

I have the honor to make grateful acknowledgment of the appropriation of five hundred dollars from the library fund, for the purchase of historical works, with particular reference to American history. The additions which I am thus enabled to make to our historical equipment will not only add value to our library but, what is of far more greater importance, will enable our students to gain broader and better knowledge of the subjects before them. While I am deeply appreciative of the kindness with which my appeal of last year was met, I cannot refrain from saying that but few, if any, of the departments of the university are even now so poorly equipped. I can but repeat the words of the late Professor Short, that "the highest success of the department is rendered impossible by the neglect to place within the reach of students a limited number of important works on history and political

science." The same is true with regard to copies of the works of *standard* and *classical* English writers, and of treatises upon English literature, general and special, and of general literature. At the risk then of appearing presumptuous, I would respectfully ask that as large a sum as the financial condition of the university will warrant be devoted during the coming year to supplying these imperative needs.

The appropriation of forty dollars for the purchase of atlases and wall maps, though smaller than was desired, places the department in much better condition in that regard, and is duly appreciated.

Very respectfully,

GEO. W. KNIGHT.

Ohio State University, October, 1886.

DEPARTMENT OF FRENCH AND GERMAN.

W. H. Scott, President:

SIR: I have the honor to submit the annual report of the work in my department for the year 1885-86:

The enrollment for the first term was:

Sophomore French	36
Freshman French	46
Second Preparatory German	12
First Preparatory German	41
	135

Deducting five counted twice the total number of different students was 130.

The enrollment for the last term was:

Sophomore French	29
Freshman French	28
Second Preparatory German	12
First Preparatory German	28
	97

Deducting three twice counted the total number of different students was 94.

The course of study, as outlined in the catalogue of last year, was pursued.

The first preparatory German had to contend against two obstacles that hindered a rapid progress in that study. One was, the majority of the members had not sufficient knowledge of English grammar to enable them to grasp readily a foreign language. Another was, some of the students were too young. These two conditions hampered those who were prepared for the work. There is no branch of study in the preparatory years that would receive greater benefit from a higher standard at the entrance examinations than the first year German.

The freshman French still uses, even at the beginning of its work, a grammar that is in the French. This is rather difficult for the student at first, but as the grammatical terms and expressions are readily acquired the difficulty is of short duration, and in mastering it he learns to read easy French.

The work of the sophomore French was, on the whole, carried on in a satisfactory manner. The majority of the class showed commendable zeal in doing the library work that must needs be done in the study of the literature in connection with the lectures in the class-room. The text-book used was Demogeot, which is also in the French language.

The department very cordially welcomed the division of its work that took place last June, when the two departments, the French and the German, were instituted. The usefulness of the instruction in both languages will be greatly promoted by this division. A word is needed as to a plan inaugurated by this change. The sophomore French has been formed into two sections, one for the science and engineering courses, the other for the philosophy course. In compliance with a request the science section will read some French of the sciences.

It would, however, seem unwise to spend the entire sophomore year in such work. The French of scientific works offers no very great difficulties; the French of historical or philosophical works is much more difficult. The student who can read the latter will have no trouble in reading scientific French. But it does not follow that he who can read scientific French will be able to read satisfactorily the French of general literature. Hence, to gain a perfect reading knowledge of the language the student should not be restricted to one particular style or class of literature, especially to a style in which the diction is limited and unvarying.

In a word, he who has difficulty in reading scientific French has no knowledge of the language that is worthy of mention.

Respectfully submitted.

ALICE K. WILLIAMS,
Instructor in French.

DEPARTMENT OF GERMAN.

The object of the study of German is, as it must be in any collegiate institution, to give to the student the ability to read any German book, whether it be a scientific work or a master-piece of German literature. This is the only aim consistent with the character of collegiate work, and the only one attainable in the limited time allotted to the study. To carry this point all efforts must be concentrated upon it, and no time can be given to an exhaustive study of grammar. It is expected that the student will master the essentials of German grammar in the first year, and that grammatical studies in the second year will be limited to a brief review of the principal topics. The instruction in the first year, or years, will be the same for all classes, while later on special work will be provided for those who desire to study German literature, and for those who wish to do scientific reading.

FIRST YEAR.

1*st Term.* Cook's Otto's German grammar. (Brandt's German grammar will be substituted next year). Andersen's Bilderbuch ohur Bilder, or some equivalent, will be read.

2*d Term.* Minna v. Barnhelm. Grammar continued.

3*d Term.* Some short German novel. Grammar finished.

SECOND YEAR.

1*st Term.* Review of grammar by topics. Hauf. Das Bild des Kaisers.

2*d Term.* Schiller's prose, or some play.

3*d Term.* Gœthe's Gœtz v. Berlichingen.

German has heretofore been limited to the first and second preparatory years, and to one elective in the junior and senior years of the course for bachelor of philosophy.

The following changes will be made next year: German will be placed as an elective into the junior (5) and senior (3) years of the course for bachelor of arts.

The five hours' elective in the senior year of the course for bachelor of philosophy will be reduced to three. A special class will be formed for those electing German in the senior year of these two courses. The work of this class will consist in advanced reading, and a systematic study of German literature. The last term will be largely devoted to the reading of Faust, and lectures upon the same. Students who enter the preparatory department with a view to taking the degree of bachelor of science, will take German, and will, later on in the sophomore year, be offered an elective two hours a week in scientific reading. Those who enter the college on Latin will take German in the freshman year five hours a week, and in the sophomore year two hours a week.

ERNST A. EGGERS.

DEPARTMENT OF LATIN.

President Wm. H. Scott:

DEAR SIR: I have the honor to submit the report of the department of Latin for the academic year ending June 23, 1886.

The students registered in this department during the year were classified thus:

First preparatory	Latin	26
Second "	"	31
Freshman	"	22
Sophomore	"	19
Junior	"	11

The first preparatory class was assigned to Mr. McCoard, the other classes were taught by myself. In all classes a good degree of interest was manifested in the authors selected for study, and the work of the year was creditably done. Better results, with no loss of interest, will confidently be looked for as soon as the recently imposed requirement in Latin for admission shall produce its due effect in raising the standard of scholarship in this department.

At first, perhaps for several years, (though the results of the experiment are thus far unexpectedly favorable), it is likely that the number of applicants will be less than with a low standard of admission, yet I misjudge the spirit of classical students if raising the standard do not prove attractive as well as beneficial. The most desirable students are drawn by a high standard of attainment quite as strongly as by large opportunities. We lose some students, and fail to attract a larger number because of an impression that the study of the classic languages is not properly fostered here. This misapprehension will, we may hope, soon be removed.

I believe the life and civilization of the Greeks and Romans might be brought much more vividly before the minds of students by a frequent and systematic use of maps, plans, coins, photographs, and other forms of illustration, by the creation, in short, and employment of a classical museum. The value of the graphic method in modern dictionaries and cyclopædias is beyond question; illustrations will be equally useful in conveying a proper idea of the less familiar objects of ancient life.

The walls of our lecture-rooms should be utilized for this purpose. Good engravings and other forms of artistic representation play an important part in education, especially in an education which is largely based upon a study of the language and life of the Greeks and Romans. I venture to hope that the professor of Greek will find it possible to give some instruction in the history of ancient classic art—a field in which many of the larger colleges are already at work.

A small sum could profitably be used at once in providing some articles of illustrative equipment for the Latin recitation room. I shall be glad to expend $50 in this way.

Very respectfully,

SAMUEL C. DERBY,
Professor of Latin.

Ohio State University, October 26, 1886.

DEPARTMENT OF GREEK.

W. H. Scott, President:

DEAR SIR: I have the honor to submit my annual report of the work done in the department of Greek for the college year ending June, 1886.

The enrollment in the four college classes in Greek for the year was as follows:

Senior Greek	8
Junior Greek	13
Sophomore Greek	9
Freshman Greek	9
Total	39

The course of study, as laid down in the catalogue, was in the main adhered to, except that the Philippics of Demosthenes were substituted for his Olynthiacs in the third term of junior year. The difficult Triumphal Odes of Pindar were, for the first time in the history of the college, read by the senior class, with gratifying success.

My class-room work included three hours a week with each of the three upper classes, and five hours a week with the freshman class; in all, fourteen hours weekly through the year.

I am able to report a high average of attendance and interest on the part of the students in my department. Very respectfully,

J. R. SMITH,
Professor of Greek.

Ohio State University, October 12, 1886.

DEPARTMENT OF MILITARY SCIENCE AND TACTICS.

W. H. Scott, President:

SIR: I have the honor to make the following report of the department of the university under my charge during the past year. The cadet battalion at the beginning of the year numbered about one hundred and fifty, but in the spring term the daily attendance did not average over seventy or seventy-five. There was not as much battalion drill as usual, but company and company skirmish drill were practiced until cadets were familiar with every detail. Owing to the size of the battalion a few cadets only were detached in the spring term long enough to learn the manual of the piece and some foot movements in artillery drill. The battalion

now numbers about one hundred and fifty-nine, but the same process of gradual diminution will undoubtedly go on this year, as it is composed almost entirely of lower classmen, who are continually leaving the university.

The discipline is very good and the interest manifested greater than usual. The members of the battalion are now engaged in organizing a band, which, if successful, will greatly promote its interests and be a pleasing feature of the university. I would again recommend that steps be taken as soon as possible to urge an appropriation from the legislature for the erection of a separate building to be used as a gymnasium, armory and drill hall. I would request that the board of trustees be informed that the faculty has been utterly unable, after much consideration, to arrange hours of study so as to permit sophomores to drill. The regulations now state that all students except seniors and juniors are compelled to attend drill. They need to be enforced or amended. It is useless to say more concerning this matter.

I am very respectfully,

Your obedient servant,

A. P. BLOCKSOM, *1st Lt. 6th Cavalry,*
Professor Military Science and Tactics.

Ohio State University, October, 1886.

THE LIBRARY.

Wm. H. Scott, President:

DEAR SIR: I have the honor to present the following account of the library for the last college year:

It gives me pleasure to report a year of decided growth in this important department of the university.

The number of volumes in the library, June 23, 1886, was 6,844, of which 1,485 had been added by gift or purchase during the academic year ending at that date.

The total given above (6,844) does not include pamphlets whose number may be estimated at 2,000.

Considerable additions have been made to the collection of congressional documents; among these were a set of the Annals of Congress, 42 vols. 8°, which was purchased, and many numbers of the Congressional Record and Congressional Globe, which were received from the department of the interior. This portion of the library will soon be materially strengthened by filling gaps that still exist in the various series. In this work valuable aid and suggestions have been received from the professor of history and English.

Next in importance, perhaps, to books illustrating the history of the United States, is a complete collection of works treating of the history and antiquities of Ohio; less expense and time is required for this object than will be in the future. Much valuable material has been lost through ignorance or neglect. Many books even now have a scarcity value which will be enhanced year by year.

PERIODICALS.

The number of periodicals is much larger than in preceding years. Some periodicals which had been ordered have not been received, and thus annoyance has been caused to several departments. It is hoped that a more satisfactory arrangement can be made for the ensuing year.

The library has a complete set up to 1885, and in most cases to date, of each of the following:

North American Review, American Journal of Science, Nature, Science, Contemporary Review, Nineteenth Century, Magazine of Western History, American Journal of Philology, Edinburgh Review, Quarterly Review, Andover Review, and *Atlantic Monthly.*

In addition to these the following were kept on file and the more important will be bound and added to the library:

The Scientific American, Popular Science Monthly, American Machinist, Van Nostrand's Engineering Magazine, Engineering News, Engineering, Sanitary Engineer, Railroad Gazette, Electrician, Chemical News, Quarterly Journal of Geological Society, Geological Magazine, Observatory, Veterinary Journal, Botanical Gazette, Journal of Botany, Bulletin of Torry Botanical Club, Breeders' Gazette, Rural New Yorker. American Dairyman, Jersey Bulletin, Astronomische Nachrichten, Rundschau, Historische Zeitschrift, Biolog Centralblatt, Magazine of American History, Fortnightly Review, Spectator, Athenæum, Nation, Mind, Journal of Mental Science, Philosophical Magazine, Princeton Review, Journal of Statistical Society, Archiv. d. Mik. Anatomie, Jahresbericht (Bursian), and *Zeitschrift An. Chemie.*

The Journals sent free were *City and Country, American Manufacturer, American Engineer, Columbus Record, Watchman, Christian Register,* and *Patent Office Gazette.*

The partial set of the *Magazine of American History, Popular Science Monthly, Fortnightly Review, Nation, Journal of Chemistry,* and *Van Nostrand's Engineering Magazine,* will be completed as soon as circumstances permit.

It seems to me very desirable that complete sets of several foreign scientific periodicals, much needed by the scientific departments of the university, should be added without farther delay. Full sets are becoming, year by year, more scarce and costly. A considerably larger appropriation will be needed for this purpose than was received last year. The ordinary appropriation is barely sufficient to meet the ordinary wants of the score of departments in the university and adds, at most, few books annually to each. The cost of periodicals, binding, etc., items now of considerable size, leaves small margin for unusual expenditures in any direction. Five thousand dollars, at least, ought to be expended upon the library in 1887, and annually for the next ten years in order to put it upon an equal footing with the libraries of the majority of good colleges in this country, many of which are growing more rapidly than ours in books and a great variety of appliances which save the time and serve the convenience of readers.

The work of cataloguing new books is kept well up to the accession list according to the plan adopted three years ago.

The library is rapidly reaching a size which will make it necessary to make other provision for its preservation and proper use. The present reading-room is too small, especially during the colder months, when it is much used as a place for study by students who spend there the intervals between recitations. The labor of directing the growth and use of the library, so far as it falls upon the librarian, is greater than I can (with proper performance of the duties of my *own* department) satisfactorily perform. The library ought, presently, to have fire-proof quarters and a well-trained head who can give it his entire attention.

Miss E. C. Lehner has rendered good service as assistant librarian for the past year.

Gifts of books have been received from various friends of the university, and have been duly appreciated.

Respectfully submitted.

SAMUEL C. DERBY,
Librarian.

Ohio State University, October 30, 1886.

THE UNIVERSITY GROUNDS.

President W. H. Scott:

DEAR SIR: I submit herewith my first annual report of the university grounds. One year ago when appointed to the position of superintendent, I took occasion to point out some general considerations and make what appeared to me to be some

practical suggestions. It was then stated that the policy in regard to the management of the grounds should be to make them as far as possible both *useful* and *attractive*. It was urged that they should furnish agreeable means of recreation and physical culture for the whole student body; that for students in the department of botany and horticulture they should be so managed as to have a special educational value, and be increasingly and permanently useful. But a *beautiful* as well as a *useful* campus is of great value to the university. It furnishes an example of good taste that cannot fail to favorably impress all visitors. More than this, it exerts a powerful influence for good upon students who spend here so large a portion of their time during these years when the mind is marvelously influenced and impressed by associations and surroundings,—years when the æsthetic tastes are developed and character is formed.

SPECIAL IMPROVEMENTS.

Among the improvements that have been planned and executed, the most valuable is the completion of a substantial brick walk extending from High street to the main building, and from thence to the mechanical and chemical laboratories. Among the minor improvements worthy of mention, have been the grading and seeding of the ground directly in front of the residence of Professor Knight, and the filling up and seeding of the road-bed which formerly crossed the campus just east of horticultural hall. Some changes have been made about the spring and lake, and the greater part of the roads and walks have been regraveled.

THE LAWN.

This has been greatly injured by the severe weather of the past two or three winters. This injury, together with the ravages of the larvæ of the May-beetle, have completely killed the grass in patches of greater or less extent throughout the whole campus. Steps are now being taken to have these patches, and the whole lawn as far as possible, liberally top-dressed with well decomposed stable manure, and at the proper time thoroughly harrowed, carefully seeded and rolled.

TREES, SHRUBBERY AND HEDGES.

The principal planting has been an evergreen hedge on the boundary between the campus and the vegetable and fruit gardens. In planting this hedge three varieties of evergreens were used, viz.: Norway spruce, arbor vitæ, and hemlock spruce. The first two varieties have made a very satisfactory growth. A small per cent. of the plants of the latter have died. These will be replaced next spring. It is the intention to keep this hedge trimmed low so that the view will not be obstructed.

FLOWER BEDS.

The flower beds and borders were greatly extended the past season. Quite a number of the designs were originated by the students in floriculture and landscape gardening. The beds were well cared for and elicited from numerous visitors commendatory words. I have already stated that the most imperative need of the department of botany and horticulture is a propagating house. With such a structure the floral adornment of the campus could be greatly extended with slight additional expense.

SEWERAGE.

Until the past spring all the sewerage from the principal university buildings was discharged into a shallow pit, at no great distance from the main building. Here it not only offended the eye and polluted the atmosphere, but rendered a large tract of land useless by its unregulated overflow.

As this land was needed for experiments in horticulture, the experiment station very generously bore all the expense of taking up and extending the sewer as well as for providing for its discharge into a properly constructed pit.

ATHLETIC GROUNDS.

In my last report the suggestion was made that the superintendent of grounds be authorized to put such portions of the campus as are used for athletic sports in good condition just before the opening of each college year, and that the care of these grounds thereafter be left to the various organizations that use them. In almost every college some provision for the physical development of students is made. Many institutions with a smaller endowment than the State University, have well-equipped gymnasiums. Physical culture is being regarded more and more as a necessary requisite for the best intellectual development. Health is the student's best capital, and a full measure of health can only be maintained by wholesome, invigorating exercise. As long as the university has no gymnasium, a reasonable degree of encouragement should be given to field sports.

One hundred and fifty dollars judiciously expended will keep the ball ground, tennis courts, and the track of the general athletic grounds in excellent order. I respectfully ask that this amount be appropriated for the purposes named.

RECOMMENDATIONS.

1. The placing of a number of street lamps along the main entrance from High street to the main building.

2. The laying of a brick walk from the main building to horticultural hall.

3. The replacing of all diseased, dead, and missing trees along such portions of High street and Woodward avenue, as border on the university estate, and the planting in the same manner of Woodruff avenue.

4. The sowing of seeds in nursery rows in the garden of such ornamental trees and shrubs as may be needed from time to time for planting upon different portions of the university estate.

5. The construction of a fountain at the lake to be supplied by the water-tank in the main building.

6. The planting in groups at suitable points on the campus, different species and varieties of trees of the same family,—the same to constitute the beginning of a well-planned arboretum.

ACKNOWLEDGMENTS.

I wish to testify to the faithfulness with which Mr. James Kelley performs his work. A better man for the place could not be found. Mr. C. A. Roth is also deserving of much credit for the industry and taste displayed in caring for the grounds about horticultural hall.

NEEDS OF THE DEPARTMENT.

With the wisest economy it is difficult to do justice to the requirements of the grounds, with an appropriation of less than $1,000.

Respectfully submitted.

WILLIAM R. LAZENBY,
Superintendent of Grounds.

FARM DEPARTMENT.

Dr. N. S. Townshend, Professor of Agriculture, Ohio State University:

SIR: Herewith the undersigned submits to you the report of the farm department for the year ending November 1, 1886.

Statement A gives, as heretofore, an exhibit of the general operations of the farm during the year.

Statement B shows the receipts and expenditures of the farm during the year, as condensed from the day-book and cash account, accompanied with proper vouchers, all of which are herewith submitted as part of this report.

All accounts against the farm to date have been paid. There are also appended a few remarks in reference to crops, and a few suggestions as to much needed improvements, for which the sum paid into the treasury could wisely be employed, if yourself and the honorable board of trustees should see fit.

Very respectfully,

H. A. WEBER,
Manager.

Ohio State University, November 1, 1886.

STATEMENT A.

Items.	On hand Nov. 1, 1885.		Bought.		Produced.		Consumed.		Sold.		On hand Nov. 1, 1886.	
	Number or amount.	Value.	Number or amount.	Value.	Number or amount.	Value.	Number or amount.	Value.	Number or amount.	Value.	Number or amount.	Value.
Horses	9	$1,190 00									9	$1,190 00
Cattle	47	4,904 82	5	$225 00	23	$430 00			28	$700 45	47	4,900 00
Hogs	45	200 00			37	282 70			28	82 70	54	400 00
Implements		3,162 20	1	40 00								3,202 20
Corn	2,586 bu.	775 80			3,192 bu.	959 60	2,565 bu.	$760 00	820	263 00	2,392 bu.	700 00
Wheat					1,012 bu.	811 94	66 bu,	72 20	946 bu.	769 74		
Oats					352 bu.	88 00	100 bu,	25 00			252 bu.	63 00
Beets	22 tons.	88 00			51.6	206 40	21½ tons,	86 00	2 tons.	16 60	50 tons.	200 00
Hay	42½ tons.	425 00	6 tons.	61 09	88 tons.	880 00	63½ tons,	635 00	3 tons.	30 00	70 tons.	700 00
Fodder	1,580 shk.	316 00			1,277 shk.	255 40	1,580 shk,	316 00			1,277 shk.	255 40
Straw	25 tons.	75 00			50 tons.	200 00	25 tons.	75 00	12 tons.	60 00	3⅜ tons.	152 00
Potatoes	16 bu.	5 60			50 bu.	20 00	16 bu.	5 60	50 bu.	20 00		
Milk										2,832 01		
Labor								2,944 86		432 84		

STATEMENT B.

RECEIPTS.

Cash on hand November 1, 1885	$207 93	
From sale of milk	2,797 31	
" " butter or cream	34 70	
" all other sources	2,802 31	
		$5,842 25

EXPENDITURES.

Paid for labor on farm	$1,375 18	
" " " in dairy	1,105 34	
" " " reimbursed	432 84	
" " " at clearing land	31 50	
" for repairs on barn and stable	54 23	
" " " " farm-house	41 50	
" " note with interest from Dec. 24, '85, to March 24, 1886	413 00	
Paid for hay tedder	40 00	
" " stock purchased for dairy	225 00	
" " hay, bran, blacksmithing and incidentals	581 49	
" into treasury of university	1,500 00	
" to W. S. Devol, cash on hand Nov. 1, 1886	42 17	
		$5,842 25

IMPROVEMENTS AND IMPLEMENTS.

In order to increase the size of the north island a man was employed during the winter months of last year to grub out and clear an adjoining strip of land, which is covered by sycamore trees and a thicket of undergrowth. About one acre of arable land, of excellent quality, was thus added to the island at a cost of $31.50. This strip was planted in Leaming corn, and produced about 70 bushels of good corn. The clearing of this land is extremely easy, as the soil is all of an alluvial nature, and the roots of the trees far below the surface.

The whole of the waste land east of the dyke should be reclaimed, and perhaps the wisest application of the accumulated earnings of the farm of the past year that could be made would be in this direction. Ten or fifteen acres of the very best land would be thus added to the farm, which now produces nothing but an annual growth of the rankest weeds, and is a perfect hot-bed for malaria.

The eave-troughs and spouting on the barn were blown off by the wind to such an extent, that a thorough overhauling was found necessary. The work was done by Aston & Huff, at a cost of $34.58. During the summer the floor in the north horse stable had decayed to such a degree that it became dangerous for the horses. The floor and timbers were removed and replaced by a pavement of hard brick. In order to prevent rats from burrowing under the brick floor and thus ruining it, cut-stone slabs were placed on edge around the inside of the sleepers. The space was then filled with coal ashes to the proper level. This was stamped and rolled to make it solid, then covered with fine sand, on which the bricks were placed on edge. The work was done by the farm hands, assisted by Mr. Kelly. Three thousand brick were used, at a cost of $15, and cut-stone slabs at a cost of $4.65. The floor has thus far proven entirely satisfactory.

It will be remembered that the plastering on the new addition to the farm-house was so poorly put on, that in a short time it began falling off the ceiling and walls. In order to make the room safe, it was found necessary to remove all the old plastering and replace it by new. A grate was also placed in the sitting-room, and the office kalsomined. The cost of these repairs was $41.50.

One hay-tedder, at a cost of $40, was purchased. This implement did admirable work in the curing of our clover and grass, which was very heavy the past season.

MANURE PIT.

An improvement greatly to be desired, both for the saving of the manure produced on the farm and for educational purposes, is a well constructed manure pit. The rudiments of the pit already exist in the barn-yard. But it should be deepened, walled and curbed, so as to exclude surface water, and the pavement commenced near the barn should be continued all around the pit, after the surface is properly leveled. The proper treatment of barn-yard manure and its value, should be impressed upon every farmer or farmer's son visiting the university, and nothing would do more good in this direction than a properly constructed manure pit, where none of the valuable constituents of the manure and other refuse matter would be wasted.

WHEAT.

Four varieties of wheat were raised on the farm the past season, Finley, velvet chaff, Martin's amber and valley. The sowing was done from the 16th to the 22d of September, the Finley and velvet chaff following wheat of the same variety respectively, while the Martin's amber and valley followed corn. The two former varieties received a top dressing of barn-yard manure, the latter received no manure at all. The following tabular statement will show the number of acres and yield of each variety, the bushels being machine measure:

Variety.	Number of acres.	Total yield.	Yield per acre.
Finley	8.25	263 bu.	31.9 bu.
Velvet chaff	7.00	214 "	30.6 "
Martin's amber	2.30	60 "	26.1 "
Valley	14.20	382 "	26.9 "
Totals	31.75	919 bu.	29 bu. av.

CORN.

The estimated yield of corn the present year is 3,192 bushels. Two varieties were planted, the white corn grown last year and Leaming. Fifty acres in all were raised. For reasons given in the last report, only the north island was planted with Leaming corn. Contrary to expectation, the yield and quality of the Leaming were very satisfactory, showing that for the past season at least this highly improved variety of corn can be grown successfully on the richest bottom land.

BEETS.

The beet crop this year was excellent. Two varieties were planted for the sake of comparison, the Ohio agricultural experiment station aiding in the work.

1.22 acres were planted with Lane's imperial sugar beet. The total yield was 24.6 tons. The yield per acre was therefore 20.1 tons.

1.04 acres were planted with large red mangel-wurzel. The total yield was 27 tons. The yield per acre was 26 tons.

From this statement it follows that the mangel-wurzel, which was planted at the same time and received the same cultivation and attention as the sugar beet, yielded six tons by weight more than the latter. Evidently, however, the comparative value of these two crops cannot be settled by weight alone. The true criterion is the relative amount of nutritive matter furnished in the given weights per acre of the two kinds of roots. This question could only be determined by a chemical examination. Accordingly, about a dozen specimens of each were selected for this purpose and subjected to an analysis.

The chemical composition of these two kinds of roots was found to be as follows, in 100 parts:

	Sugar beet.	Mangel-wurzel.
Water	86.94	89.84
Ash	0.76	0.82
Protein	2.01	1.54
Crude fiber	0.79	0.78
Nitrogen—free extract	9.28	6.82
Fat	0.22	0.20
Total	100.00	100.00
Dry organic matter	12.30	9.34

Multiplying the number of tons per acre by the per centage of dry organic matter respectively, we find that the 20.1 tons of sugar beets give us 2.47 tons of nutritive matter, and the 26 tons of mangel-wurzel give us 2.42 tons of nutritive matter. In other words, the 20 tons of beets are a little more than equivalent in nutritive value to the 26 tons of mangolds.

HAY.

The hay obtained from the lawn at first cutting was about 25 tons, and about 5 tons, chiefly clover hay, were obtained at the second cutting.

A field of 16 acres was in clover, from which there was obtained 35 tons of hay of excellent quality, with the exception of about 4 tons damaged by the rain. A timothy meadow of 8 acres yielded 23 tons of excellent hay, all of which was gotten into the barn in good condition.

DEPARTMENT OF HORTICULTURE.

Hon. I. B. Wing, Chairman Farm Committee:

DEAR SIR: I have the honor to present the annual report of the out-door work of the department of botany and horticulture for the year 1885-6:

The report includes a statement of the facilities for teaching practical horticulture, the progress and results of the labors of the past season, together with the receipts and expenditures for the year.

OBJECT OF THE GARDENS.

The primary object of the gardens is to illustrate the value of different varieties of fruits and vegetables, to show the effects of different methods of culture, and to present, as far as possible, a good example of general management. Another object is by observation and experiment to reach results that are of equal interest and value to the general public.

PUBLIC APPLICATION.

It is but fair to say that the collections of vegetables and small fruits grown annually in the university offer unequaled facilities for comparison as to real merit.

That these opportunities are being appreciated is evidenced by the large and constantly growing correspondence and the increasing number of visitors.

A great degree of interest is manifested by fruit-growers and gardeners in various parts of the country in the work that is being done by the department. Plants and seeds are frequently sent for trial, and the reports of the various tests made are looked upon with favor. This is not wholly due to the magnitude and completeness of our operations, but rather on account of their impartial and disinterested character.

Among the visitors of the past year that were specially interested in the work of this department, may be mentioned, Prof. William Saunders, president of the Canadian horticultural society; Major H. E. Alvord, director of Houghton farm, and now professor in the Massachusetts agricultural college; Prof. M. A. Scovell, director of the Kentucky agricultural experiment station; Mr. H. Hale, the celebrated small fruit culturist of Connecticut; W. H. Maule, the well-known seedsman of Philadelphia; J. W. Jenks, professor of agriculture in Brown University, R. I.; Mathew Crawford, J. J. Harrison, N. Ohmer, B. F. Albaugh, F. R. Palmer, Leo Weltz, E. H. Cushman, S. R. Moore, and many other prominent horticulturists of the state.

The number of visitors during the year exceeded three hundred.

GENERAL STATEMENT.

The work in the department has been carried on during the year upon the same general plan as in former seasons, except that it has been somewhat more experimental in character.

Although the expense of this work has been defrayed by the experiment station, the total receipts of the department have been somewhat lessened. The decrease, however, has not been so great as might be expected. The area of crops grown for market purposes alone has, of course, decreased as the space devoted to purely experimental work has increased. While this has diminished the quantity of marketable produce it has also lessened the amount of labor required in the market garden. In other words, the amount of work carried on in the market garden proper has been less than in former years, because of the space devoted to experimental work. It is probable, however, that the balance is not very different from what it would have been had the amount of business transacted been two or three times as great, unless educational and experimental work were wholly set aside for mere money-making.

The areas devoted to most crops have been about the same as in former seasons, but in many cases a considerable percentage of the products has been unmarketable on account of inferior varieties that were planted for trial. Inasmuch as all of the products of the garden belong to the horticultural department, even though grown by the station, the planting of what prove to be worthless varieties, where valuable ones might be grown, would seem to cause considerable loss. This loss, however, is not a serious one to the department, for the reason that it is only the profit that might have been made in growing a better crop upon the same ground.

It is probable t is loss is fully met in the products that the station turns over to the department, and upon which it sustains no expense, except that of marketing. Thus it will be seen that while the department is unable to carry on the same amount of business as might be done if none of its ground were given up to the station, its financial condition is not seriously affected by so doing.

The horticultural work is all carried on under the same management, thus making unity and harmony possible. It must be conceded, however, that the mere business details of looking after numerous small crops, and marketing driblets of produce, consume much of the superintendent's time that might otherwise be devoted to experimental work.

The amount of student labor used has been somewhat less than formerly, for the reason that it has been found more satisfactory to employ students upon experimental work, and regular employes upon garden work proper. This is advantageous to students, both as to the amount of work that can be given and the opportunities afforded for observation.

It may be safely asserted that the opportunities here afforded for the study of horticultural products and operations are rarely equaled. Nearly all the fruits and

vegetables commonly grown may be found in their season. All of the new varieties and novelties are planted each season, together with those that are well-known, aggregating considerably more than one thousand.

Different methods of cultivation are practiced and the use of fertilizers illustrated by numerous series of plat experiments.

The educational value, as well as the condition of the work experimentally, can best be shown by a detailed statement of the crops grown.

In many cases it is impossible to give an estimate of the cost, for the reason that no satisfactory account has been, or could be kept of the purely experimental work. An account of the cost of such crops as were grown solely for profit, and upon a considerable scale, can alone be given.

THE FRUIT GARDEN.

Apple Orchard. Although many of the trees, as stated in a former report, have been injured by the severity of the frost two or three winters, a considerable number have made a thrifty growth and borne some fruit.

The location is not a desirable one for an orchard, and but little more can be realized from it than the purpose it may serve as a comparative test of varieties under unfavorable but equal conditions.

In consideration of the fact that orchards have been greatly injured of late by freezing, the question of hardiness of varieties is one of signal importance. By top-grafting it will be possible to test a large number of varieties, both new and old. In this way the apple orchard may be made to serve a very useful purpose.

Pear Orchard. Two years ago it was thought that the pear trees were making a too vigorous growth, and a portion of the orchard was seeded with clover. This, however, did not save the trees, so about one-fourth of the dwarfs perished during the winter. The remaining trees bore a fair crop, a large share of which was taken by trespassers. It will be necessary to adopt some method of protection if the crops are to be secured in the future. Several of the healthiest and hardiest of the standard trees have been top-grafted with new and valuable sorts. These grafts have grown finely, and will soon bear fruit. The whole list now includes fifty or more varieties. Like the apple orchard, the usefulness of the pear orchard will consist for the most part in its value for experimental purposes.

Quince Orchard. This continues to grow thriftily but bears no fruit. Since the severe injury of the plants by frost three years ago, they have been trained in the bush form. The location of the orchard is thought to be a suitable one for quinces, and it is probable that it will give more satisfactory results in the future.

Cherry Orchard. The trees of all varieties, except those of the early Richmond, have succumbed to the severity of the climate. Those remaining of this hardy and valuable sort gave a good crop of excellent fruit. An account of this crop the past season alone would show almost no expense aside from that of picking and marketing. The cultivation given to the currant and gooseberry bushes, growing between the trees, was the only labor expended upon them.

If the trees were charged with a proportionate share of the cultivation given since planting, together with a portion of the first cost, the showing for the year would be fairly represented as follows:

One-fifth original cost of trees	$3 00	
Cultivation	3 00	
Picking and marketing of crop	8 70	
	$14 70	
Fifteen bushels of fruit, at $2.00		$30 00
Net profit		$15 30

The above statement is based on the supposition that the trees will bear at least four more crops, each one of which shall be charged with a share of the first cost. The orchard consists of fifty trees of bearing age, occupying about one-third of an

acre of ground. For several seasons the gooseberry and currant bushes growing between the trees have brought even better returns than the cherries.

This more than doubles the receipts and net profits from this plat of ground, making a good showing for these somewhat neglected fruits.

Currants. Although the currant worm has been successfully combated by means of white hellebore, the bushes have become somewhat debilitated through partial loss of leaves, old age and on account of being too much shaded by the cherry trees. The yield for the past season was, therefore, light. It will be necessary to plant cuttings and start a new plantation. The white varieties are comparatively unprofitable, as the demand for them is quite limited.

Fay's Prolific, a new variety about which much has been said, seems likely to maintain its high reputation. Our experience shows that the currant, when properly treated is a very profitable fruit to raise. Its value is enhanced by the persistent ravages of the currant worm, which is kept in check by few, mainly those who make fruit growing a business.

Gooseberries. Although the gooseberry bushes are in a somewhat better condition than the currant bushes, what has been said of the latter applies to them also. The yield the past season was unusually light.

Raspberries. There were about two acres in bearing the past season. A portion of the plantation of red varieties was on low ground, and the canes winter-killed every season. This portion proving unprofitable the plants were dug up last spring and the ground devoted to strawberries.

A part of the black caps were also grubbed out. A new plantation consisting of varieties for trial has been started. The plants in both the old and new patches are in good condition, having made a fine growth.

The red varieties were pruned much closer than usual last year. This resulted in much better fruit, it being both larger and more solid.

The receipts were doubtless greater than they would have been if the old method had been practiced, although the yield in bulk was somewhat less.

This experiment which has been tried two seasons, demonstrates beyond a doubt that the quality of the fruit is greatly affected by the manner of pruning. In the case of certain varieties, especially the Turner, this improvement was marked. The receipts from raspberries marketed were less than usual, owing to the overstocked condition of the market. The average price was about $2.50 per bushel. A little more was obtained at the beginning of the season; also, for what was sold at retail.

The following account shows the cost of cultivation and returns from one acre of Turner raspberries:

The expense account shows what was actually paid for pruning, cultivating, picking and marketing. The receipts may have been a few dollars more or less, as some of the fruit was sold in connection with other fruit, and a seperate account was not kept. The average price, per bushel, that named.

	Dr.	Cr.
Pruning and cultivation	$12 00	
Picking and marketing	60 50	
	$72 50	
50 bushels of fruit, @ $2.50		$125 00
Net profit		$52 50

It would of course be proper to debit the crop with rent of land, and a share of the original cost of plants, etc.

The crop of black varieties was not equal to that of the red sorts, owing to the fact that some of the plants were not of bearing age. The cost of picking is less, however, and the demand for the fruit better. Thus the two classes are nearly equal in point of profit. Our list of varieties on trial is very complete, comprising nearly all of the new and many of the old.

Of the black varieties Gregg, Ohio, and Tyler have given the best satisfaction, while of the red, Turner, reliance and Marlboro are among the most desirable.

Strawberries. The yield was comparatively small, owing in part to the unusually short season, but still more to the ravages of insects. No accurate detailed accounts can be given of the cost of growing the crop, because much of the work thereon was purely experimental.

The experience of several seasons has shown that about one month of labor per season is required to properly cultivate and care for one acre of strawberries. To this must be added rent of land, cost of plants, fertilizers, picking and marketing. The aggregate of these items makes the cost about one dollar per bushel. In the case of some of the large-fruited but shy-bearing sorts, the cost is considerably more than this sum. The average price at retail, the past season, was $2.50 per bushel, or a little less than eight cents per quart.

The wholesale price was about $2.00 per bushel, or six and one-quarter cents per quart. Berries of inferior quality often sold as low as $1.50 per bushel.

The net profit on the crop was about $1 00 per bushel, which is considerably more than was realized by many private growers.

Our collection of varieties is very complete, embracing nearly all the desirable sorts, both new and old. We are also testing many promising varieties still unknown to the public.

The most desirable kinds are Crescent, Champion, Sharpless, Cumberland, Miner's prolific and Jewell.

The four last named are especially valuable where fine large fruit is desired.

Blackberries. Special efforts have been made to find hardy varieties that will withstand the severe cold and sudden changes of temperature of our winters.

Snyder and Stone's hardy are the only ones thus far tested that seem to answer the requirements of our climate. Unfortunately the fruit of these two varieties is so small that they do not prove profitable for market.

The Lucretia dewberry seems thus far to meet the requisite conditions, and will be planted more extensively. The plants are hardy, while the fruit is of large size and very early. From present indications this variety seems destined to occupy a very important place among our fruit plants.

Several species of huckleberries and blueberries are on trial, but success with them is by no means assured. The growth of the plants is feeble and sickly, showing that they are not adapted to the soil and climate.

THE VEGETABLE GARDEN.

The field lying north of the fruit garden has been used the past season for the cultivation of garden vegetables.

Nearly all the work in the vegetable garden was experimental, hence no itemized financial account of the different crops can be given. The net income received by the department, however, has been nearly or quite as great as though regular crops had been grown, since all of the experimental work is paid for by the station.

Celery. This crop was grown on a small scale mainly for market, water for irrigating being convenient, by means of which success was assured. The celery was planted as a second crop on ground which had been devoted to early cabbages. Irrigation was practiced at the time of setting the plants, and at other times whenever there was a lack of sufficient moisture. A liberal supply of well decomposed stable manure was placed in the bottom of the furrows before planting.

The value of the crop is estimated, since it has not all been sold. The area occupied was one-tenth of an acre.

	Dr.	Cr.
2,000 plants, @ $2.00 per hundred	$4 00	
Labor, planting and cultivating	12 00	
Cost of marketing	10 00	
	$26 00	
2,000 plants, @ $2.00 per hundred		$40 00
Profit		$14 00

This statement shows that although celery may be grown here with some profit the margin is small. The following method, which seems particularly well suited for the family garden, has been successfully practiced. It differs from the ordinary method, simply in the fact that the plants are set closely in beds, six inches by one foot apart, in order to facilitate irrigation. The beds should be about four feet in width, and highly fertilized. The plants may be banked in this position and left a great part of the winter, if covered with straw.

This plan has been found to be quite as suitable for a market garden as the old method, and much better where the celery is grown for private use.

Cabbage. This vegetable was grown for experiment only. Considerable space was devoted to trials of fertilizers, as the soil was poor, and thought to be well adapted to the purpose. The results were not very decisive, except in the case of complete fertilizers, such as stable or farm-yard manure, or compounds containing its equivalent.

The trial of varieties was conducted the same as last season. About 300 different samples were tested. The question of quality of seed is one of such importance that this work is regarded as of very great value by seedmen and growers generally. A detailed statement is necessary in order to show the results of these tests.

Preference is given to seed from Brill, Vick, Henderson, and Livingston, although nearly all seedmen have more or less good stock. The following varieties are recommended as being among the best: Early Wakefield, Early Summer, Fottler, Flat Dutch, Louisville Drumhead, and Surehead. Nearly all of the so-called "earliest" kinds, such as Early Etampes, Early Paris, and the various strains of each, sent out under new names, are worthless in this climate, and reflect little credit upon the seedmen who give them such unqualified praise.

Tomatoes. Ninety different samples were grown under sixty distinct names. The number of varieties was less than half of the latter number, showing that synonyms are numerous.

Several samples, that proved to be old varieties under new names, were obtained from Europe, proving that foreign seedsmen, as well as our own, make a practice of renaming recent importations. Comparatively few of the whole list are worthy of cultivation. The Acme, Favorite, Perfection and Beauty have given the best satisfaction. Numerous others, quite as good, under various names, are nothing but slightly modified forms of these well known sorts. The Mikado, sent out last season, proves to be no better than several other rough and ill-shaped sorts that have been discarded.

No tomatoes were planted for market, as those planted for trial yielded all the fruit that could be sold with profit.

Potatoes. Two acres were planted for market, but the soil was so infested with white grubs that the crop was nearly ruined. At least 80 per cent. of the potatoes were so badly eaten as to be unmarketable.

A careful test of fertilizers was carried out, but the results have not been tabulated. An increased yield was noticed where potash salts, superphosphate and manure were used, although the effects were not marked in any instance. The potato scab was much worse where manure was used than upon unfertilized plats. Potash salts seemed to check it to some extent. About 200 varieties were planted. It does not seem likely that any of the new and highly praised varieties will supersede those that are now regarded as standard sorts.

The usual attention was given to peas, radishes, squashes, carrots, onions, etc. None of these crops, except squashes, were grown for market. The price realized for these vegetables is usually so low, and the amount of labor required to fit them for market so great, that they cannot be grown at a profit.

Squashes here yielded very satisfactory returns, better perhaps than any other garden vegetable, but even here the demand is limited.

IMPROVEMENTS.

The new location of the vegetable garden is much superior to the old. The soil is better drained, and responds more readily and quickly to the application of manure. Sufficient stable manure could not be obtained to properly fertilize the

whole garden, but where applied the effect was marked. On the whole, the crops were better than usual, and there is no reason why they should not continue to improve until maximum yields are obtained. The cost of working and trouble of superintending is greatly lessened by the removal. Roads have been laid out in continuation with those in the fruit garden, making every portion easily accessible, while the appearance is much improved. The old fence along the east side of both gardens has been removed, and in its place an evergreen hedge has been planted. This forms a neat boundry line between the campus and gardens.

Water-pipes for irrigation have been laid along the east side of the north garden, and connections made with the city water-works. This gives excellent facilities for growing certain crops that require an abundance of moisture. The open cess-pool, which received the sewerage from the university buildings, and occupied much valuable land; has been removed by extending the sewer to the west side of the garden. This pit is now so constructed that it does not overflow. This improvement, as well as the laying of the water-pipes, was paid for by the experiment station. On the whole, the department is in a much better condition to do efficient work than at any previous period of its existence.

AN URGENT NEED.

A propagating house is much needed to grow plants for early planting out of doors, and to force certain vegetables. Hot-beds are unsatisfactory and inconvenient for these purposes. They are being discarded by practical gardeners and cheap green houses used instead. A propagating house would serve as a valuable means of illustration, and is needed by every division of the department of botany and horticulture. It would afford employment for students at a season of the year when out-door work cannot be furnished. The construction of a suitable house for the objects named would cost about $500. This sum would build a house 20 x 50 feet, which would meet the present requirements.

FOREST TREE CULTURE.

The plantations of forest trees embrace the following:

Wild Black Cherry.
Yellow or Black Locust.
Catalpa (*speciosa*).
Black Walnut.
Green Ash.
White Ash.
Black Ash.
Sugar or Hard Maple.
Red or Scarlet Maple.
White Oak.
Red Oak.
Chestnut Oak.
Beech.
Cucumber.
Kentucky Coffee Tree.
Chestnut.

The seeds of the above-named species were sown or planted in the spring of 1882. With the exception of the chestnut, oaks and walnut, which were not transplanted, the different varieties were removed from the seed-bed when one year of age. The measurements are the average of ten trees of each variety so selected as to fairly represent the whole number. The trees were grown in rows three and one-half feet apart, and two feet apart in the row.

The following table shows the diameter at collar or base of the stem, at two feet, and four feet above the ground, together with the total height, and the growth of the present season. The measurements were taken during the second week of August, 1886:

TABLE SHOWING THE COMPARATIVE RATE OF GROWTH OF YOUNG TIMBER TREES.

Variety.	Diameter at base.	Diameter at 2 feet.	Diameter at 4 feet.	Total height.	Growth during 1886.
	Inches.	*Inches.*	*Inches.*	*ft. in.*	*ft. in.*
ld Black Cherry ...	2¾	2¼	1½	14 1	4 2½
Bl'k or Yellow Locust	3½	2⅜	2¼	19 ¼	5 ⅛
Catalpa	3⅜	2⅜	1¾	11 10¾	3 7½
Black Walnut	2	1⅜	1⅛	9 6⅜	3 7
Green Ash	2½	1¾	1¼	13 1	4 3¾
White Ash	2¼	1⅜	1¼	10 10⅛	3 11½
Black Ash	1⅝	1⅛	1/16	9 4¾	4 10½
Sugar Maple	1½	¾	1/16	6 7½	1 7¼
Red Maple	1⅝	1¼	¾	7 3¾	1 9½
White Oak...	1½	1/16	1/16	4 2½	11½
Red Oak	1⅞	⅞	⅝	9 2½	2 ½
Chestnut Oak	1⅛	1¼	½	8 6¾	2 8
Beech	¾	¼		3 4½	1 2½
Cucumber	1⅝	1⅛	½	6 3	2 6
Ky. Coffee Tree	1¼	¾	⅝	5 5¼	3 ¾
Chestnut.....	1 3/16	⅛	1/16	7 3⅝	3 8⅜

The following tables of comparative growth present some points of interest. The varieties mentioned in each table were grown side by side, but in independent plantations:

COMPARATIVE ANNUAL GROWTH OF CATALPA AND SUGAR MAPLE, THREE YEARS FROM SEED, TRANSPLANTED AT ONE YEAR.

	First year's growth in inches.	Second year's growth in inches.	Third year's growth in inches.
Sugar Maple	8	22	38
Catalpa	20	44	45

We see from the above table that the Catalpa grew two and one-half times the height of the Sugar Maple the first season, twice the height the second, with a comparatively slight difference the third year.

COMPARATIVE ANNUAL GROWTH OF GREEN ASH AND WHITE ASH, FOUR YEARS FROM SEED, TRANSPLANTED WHEN ONE YEAR OLD.

	First year's growth in inches.	2nd year's growth in inches.	Third year's growth in inches.	4th year Aug. 1, gr'th in inches.
Green Ash	14	25	35	38
White Ash	12	20	33	42

COMPARATIVE GROWTH OF YELLOW LOCUST AND CATALPA, EIGHT YEARS FROM SEED TRANSPLANTED WHEN TWO YEARS OLD.

Variety.	Total height.	Present year's growth.	Diam. at base.	Diam. at 4 ft.	Diam. at 8 ft.	Diam. at 12 ft.	Diam at 16 ft.	Diam. at 20 ft.	Diam. at 24 ft.	Diam. at 28 ft.
		ft. in.	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*
Yellow Locust..	34 3	5 7	5¼	4	3⅝	3⅜	3⅜	2 3/16	1⅞	1 1/16
Catalpa	22 4	2 11	3⅝	2½	2	1⅝	1 5/16			

The trees referred to in the last table were planted by the agricultural department of the State University before the establishment of the experiment station.

BOTANIC GARDEN AND ARBORETUM.

I append to this report a copy of a paper read before the last meeting of the state horticultural society, on the "Need of a Botanic Garden and Arboretum." I trust the way will soon be open to meet this imperative need:

THE NEED OF A BOTANIC GARDEN AND ARBORETUM.

BY PROF. W. R. LAZENBY, OF COLUMBUS.

The impression is common that of the three great kingdoms of nature, the vegetable is really the least important. We know it through some of its more common representatives, but scarcely ever give it the rank that is accorded to either the animal or the mineral kingdom. The truth is, however, it is much more important than either of these, and may be regarded as a connecting link between them. Plant life is not possible without the mineral elements, and animal life is wholly impossible without plants Did you ever think of the fact that no animal can exist without the aid of some vegetable production? It is true that animals often live directly upon other animals, but these other animals are dependent for their existence upon plants.

The great office of plants is to change mineral matter, i. e., air, water, and earth, into organic or vegetable matter. The vegetable kingdom, therefore, performs the following offices:

1. It furnishes all the food upon which animals live. All the food of all animals was made by plants.

2. It furnishes pure air for man and the lower forms of animal life.

3. It furnishes all the clothing of man.

4. It furnishes all the fuel and light material in the world (natural warmth of the body included).

5. It furnishes the greater part of our utensils, tools, and building material.

6. It furnishes the most valuable medicines for restoring health and warding off disease.

I might extend this list considerably farther, but enough has been said to show that the animal kingdom is not only wholly dependent upon the vegetable for its existence, but for almost every needed comfort and convenience.

So much for the importance of the vegetable kingdom. Let us now consider me special reasons why the science of botany, or the study of plants, is one worthy our attention. These considerations will also include some of the advantages fforded by such study:

1. Representatives of the vegetable kingdom for observation and study are abundant and readily accessible. Weeds, flowers, shrubs, trees, are everywhere about us.

2. The elementary facts regarding the external structure, growth, and classification of plants are so simple that their study can be commenced in early childhood, and be pursued by every one.

3. Botany stands without a rival as a means of developing the powers of observation, and in the scope it offers to the cultivation of the descriptive faculties.

4. The pursuit of botany enlarges our capacity for enjoyment. It opens up to us a world of grace, harmony and beauty.

5. Most important of all, is the fact that an intimate knowledge of plants has a practical value in various directions. It is indispensable to the intelligent pursuit of horticulture and agriculture, and when we consider that more people are occupied in these avocations than in all others, its value must be recognized. Medicine, both human and veterinary, is depending more and more upon a knowledge and use of plants and their various products. Industrial art and commerce are much more intimately related to the vegetable kingdom than to the animal or mineral.

These brief considerations show conclusively that botany, or a knowledge of the vegetable kingdom, is of great importance to the welfare and prosperity of the state. Let us forever rid our minds of that superficial prejudice against botany that ranks it as a fancy subject—a mere accomplishment, best suited to girls and invalids. Botany is a noble branch of knowledge, and its fundamental principles should be understood by all.

In view of the importance of the vegetable kingdom, and the desirability of increased facilities for studying and observing the same, many have felt that Ohio should have a suitable garden where all plants that would grow in our climate could find a home, and their economic value be definitely determined. This sentiment found expression in the meeting of our state society last winter, and a resolution was unanimously adopted stating that—

"The establishment and maintenance, at the Ohio state university, of a well-equipped garden and arboretum, for the illustration of systematic and economic botany and forestry, would be of great benefit to the people of the state, especially to teachers of our public schools, to farmers, nurserymen, fruit-growers, florists, and to medical students. In such establishment the Ohio state horticultural society will take the deepest interest, and it desires, respectfully, but earnestly, to commend the subject to the trustees of the state university, and to the general assembly."

Upon the passage of the above resolution, a committee, consisting of Dr. N. S. Townshend, Gov. Hoadly and Prof. M. C. Read, was appointed to prepare a memorial, expressing the wishes of the state horticultural society, and to present the same to the general assembly of the state. This committee performed its duty in an acceptable manner, and an earnest effort was made to secure the desired end by appropriate legislation. No action was taken by the legislature, and the matter is just where it was before.

Let us consider the plan contemplated by the society. The resolution states that the establishment and maintenance of a well-equipped botanic garden and arboretum would be of great benefit to the people of the state. What is meant by the "establishment of a botanic garden and arboretum?" The general features of the plan are as follows: It is designed to use a certain tract of land belonging to the state university—say, ten acres, more or less—which is admirably situated for the purpose—for the growth of herbaceous plants, shrubs and trees, not only from parts of the United States, or of America, but from all other parts of the world, as well. All of the different species and varieties introduced will be grouped under two distinct systems of arrangement. One system will exhibit, in the best manner possible, the natural relationship that exists between the different plants—that is, all the representatives of each family will be grouped together, without reference to their economic properties, and the families, as far as possible, will be arranged according to their botanical sequence. Another system of grouping will place all plants of economic value in groups according to the nature of their products. For example all plants that produce fibres would constitute one group; all that had any value as

medicines would form another, and so on, furnishing a means of popular instruction by object lessons that would be invaluable.

In this way, the climatic adaptations and economic values of plants of all kinds, grasses, grains, fruits, ornamental and forest trees from different parts of the world could be readily studied, and, as a result, reliable information regarding their merits could be given to the public. Such a garden and arboretum could subserve other ends of usefulness. One is the distribution of seeds and plants of new varieties, such distribution usually taking the form of exchange. When we consider that many of our finest ornamental plants come from abroad, that the same is true of vegetable and fruit plants, and remember that no special systematized effort to introduce these has been made until quite recently, this plan of exchange and distribution opens up a wide and promising field of usefulness.

BOTANIC GARDENS IN OTHER COUNTRIES.

Last year, we were favored with a very interesting description of the botanic gardens of Great Britain, by Dr. Townshend. There are twelve of these gardens in the British Empire, and some of them have a world-wide reputation. The garden of Kew, England, is probably the largest and most perfectly equipped of any in the world.

Let us see what other countries are doing in the same direction. Germany has 32 gardens; Italy, 24; France, 22; Austria and Russia, 12 each; Belgium, 6; Switzerland, 5. Our own country, the great United States, has but three; one at Washington, maintained by the general government; one at Cambridge, belonging to Harvard university, and one at St. Louis, established and supported by the private beneficence of Mr. Henry Shaw. Perhaps I should mention in addition a small but well-planted garden at the Michigan agricultural college at Lansing. The educational value of these gardens is manifest when we consider that a large proportion of them are connected with, or maintained by, educational institutions. Their importance as a means of popular instruction to a very large class of people who have no opportunity for special education is very great, and is recognized by other nations, if not by our own. The relationship that exists between institutions of this character and the culture and refinement of a people is close and intimate. The influence they exert is a powerful factor in the formation of individual character. The character of the individual gives national character, and those nations which possess the strongest character—which lead the world in thought and in all the higher elements of an advanced civilization, are those which have the largest number of these educating and refining institutions.

Our own state of Ohio is one of the largest and most populous in the Union. No other occupies so important a geographical position; no other has more varied or extensive resources; few, or none, possess greater agricultural or horticultural possibilities. In view of these facts, an accurate knowledge of plants, with special reference to their climate adaptations and economic value, is demanded. The great state of Ohio should, at least, be on a par with Denmark, Servia, Tasmania, New Zealand, and other countries, each of which has a well-established botanic garden and arboretum. Neither Egypt nor Japan can be classed among the most civilized or enlightened nations of the earth. In fact, they occupy a low plane of civilization, yet they have their botanic gardens. Certainly, Ohio, with her enterprise and wealth, should not consent to take a lower position than these countries.

The rapid removal of the timber which once covered our state, is giving rise to many questions, and presenting problems that demand solution. The only way to grapple with these questions is to make a careful study of forest trees with reference to their influence upon climate, their adaptability to different soils, the best methods of culture, general management, etc. Here, as in other directions, the botanic garden and arboretum should unite the scientific with the practical.

QUESTION OF MAINTENANCE.

This is an all-important subject. It should have a sufficient guaranteed fund, supplying an ample revenue to keep it in good order and to pay for efficient services in the way of investigation and experimentation. Inasmuch as the institution is for

the state, it should reasonably look to the state for its support. Another method is by private donation. I cannot but express the hope that the day is not far distant when some wealthy, public-spirited individual will seek to rear a worthy monument to himself, benefit the state, and bless the whole country, by establishing and permanently endowing a botanic garden. Surely, some successful business man must see that to thus give his name forever to a grand botanic garden and arboretum would be a most fitting and honorable crowning of a prosperous business career. The names of Arnold and Shaw, that are now given to such institutions, will be remembered long after the names of presidents and senators are forgotten. The state might begin the work by establishing a garden, and then await the coming of some noble, patriotic citizens who would add to the funds requisite to maintain it—an endowment for a director and trained observers, with all needed appliances for investigation, as well as for the publication of results.

LOCATION.

Certainly, no city in the great state of Ohio can claim so many important educational institutions—those representing so wide and varied a range of interests, as Columbus. As the great educational center of the state, the botanic garden and arboretum should be located here. More than this, Columbus is a natural center for testing plants for the whole state. Shrubs and trees grown here will also grow in the slightly colder climate of our northernmost countries. Any location farther south, on account of the warmer climatic conditions, would not be so well suited for the acclimatization of foreign plants. Plants that will stand the climate of Columbus could be safely distributed throughout the entire state.

In conclusion, it is my earnest hope that the general public will so far appreciate the need of a botanic garden and arboretum, that the effort now being made by our society will meet with substantial financial encouragement from state, city and private individuals.

ACKNOWLEDGMENTS.

I again extend my thanks to the friends of the university who have aided the department of horticulture by donations of seeds, plants, etc. Every gift of this character has increased the usefulness of our work. I desire to express my appreciation of the ability and industry of Mr. W. J. Green, superintendent of the gardens. The success of the department is largely due to his untiring efforts. Thanks are also due the students and others who have labored in the gardens With scarcely an exception all have proved faithful, showing a desire to do good, honest work.

FINANCIAL STATEMENT.

Statement of the aggregated receipts and expenditures of the fruit and vegetable gardens of the Ohio State University, for the year ending November 15, 1886:

Receipts from produce sold		$772 40
Balance on hand		22 52
Total		$794 92

EXPENDITURES.

Ordinary labor	$480 38	
Student "	67 51	
Superintendent	150 00	
Repairs	2 15	
Freight	1 95	
Seeds, plants, crates, manure	83 75	
Total	$785 74	
ance on hand		$9 18

Respectfully submitted.

WILLIAM R. LAZENBY.

TREASURER'S REPORT.

COLUMBUS, OHIO, *November* 15, 1886.

HON. SETH H. ELLIS, *President Board of Trustees of the O. S. University:*

DEAR SIR: Herewith I hand you my report for the fiscal year ending this 15th day of November, 1886. The report includes the following statements:

I. Recapitulation.
II. Statement of the endowment fund—held by the state and pledged to the support and maintenance of the university.
III. Statement of Virginia military land sales.
IV. Detailed statement of cash receipts during current fiscal year.
V. Detailed statement of cash disbursements during current fiscal year.
VI. Statement of appropriations made by the board of trustees, and a list of professors, officers and employes, with salaries of each.

Respectfully submitted.

F. W. PRENTISS, *Treasurer.*

STATEMENT I.

RECAPITULATION.

F. W. PRENTISS, *Treasurer, in account with Ohio State University:*

		Dr.
To cash balance as per my report of 1884-5		$ 1,417 52
Received from Ohio state treasury		37,269 98
Being on account of interest on endowment fund, maturing January 1, 1886	$10,000 00	
Being balance of same, maturing Jan. 1, 1886	6,134 74	
Being on account of same, maturing July 1, 1886	5,000 00	
Being on account of same, maturing July 1, 1886	5,000 00	
Being balance of same, maturing July 1, 1886	6,135 24	
Being on account of same, maturing Jan. 1, 1887	5,000 00	
Received from Ohio state treasury		572 07
Being on account of general assembly appropriation for trustees' expenses.		
Received from students		5,869 00
Being balance of fall term fees, 1884-85	$ 61 00	
Being winter term fees, 1885-86	1,889 00	
Being spring term fees, 1885-86	1,671 00	
Being fall term fees, 1885-86	2,248 00	
Received from rent O. S. U. residences		1,930 00
Being residence occupied by Pres. W. H. Scott	$385 00	
" " " Prof. A. H. Tuttle	545 00	
" " " Prof. B. F. Thomas	467 50	
" " " Prof. Geo. W. Knight	412 50	
" " " Prof. Sam'l C. Derby	120 00	

Received from agricultural experiment station		300 00
Being amount paid Prof. H. A. Weber for services as chemist.		
Received from proceeds of farm		1,500 00
Being amount paid by H. A. Weber, farm manager.		
Received from sales Virginia military lands		202 28
Being sundry notes, payments on notes and interest on same	$180 28	
Being cash payments on lots sold	22 00	
Received from miscellaneous sources		153 30
Being for postage stamps sold students by Pres. Scott	$ 9 42	
Being for apparatus and supplies sold students by Prof. Norton	137 88	
Being for old carpet sold by Bursar Cope	6 00	
		$49,214 15

F. W. PRENTISS, *Treasurer, in account with Ohio State University:*

	Cr.
By cash paid faculty, teachers and officials	$31,916 63
" on account of expenses board of trustees	183 41
" " fuel and care of buildings	460 46
" " department supplies	742 14
" " attendance at farmers' institutes	107 00
" " general repairs	1,184 32
" " other current expenses	3,283 46
By balance, being cash in hands of treasurer	11,336 73
	$49,214 15

STATEMENT II.

STATEMENT OF THE ENDOWMENT FUND IN ACCORDANCE WITH THE PROVISIONS OF AN ACT PASSED FEBRUARY 10, 1870, O. L., VOL. 67, PAGE 15, SECTIONS 8433 AND 8446, R. S.

The principal of the endowment fund is	$537,841 46
The annual income from above source is interest computed at the rate of 6 per cent. per annum, and amounts to	32,270 48

STATEMENT III.

VIRGINIA MILITARY LAND SALES.

Net cash receipts into treasury from sales to November 15, 1885, as my report 1884-85, page 71	$38,343 91
Cash receipts during year 1885-86	202 28
Net cash receipts to November 15, 1886	$38,546 19

NOTE.—$13,665.84 of these receipts have been paid into the Ohio state treasury to the credit of the endowment fund. The remainder having been added to the current funds and applied to the building of new residences for professors, and as otherwise directed by board of trustees.

STATEMENT IV.

DETAILED STATEMENT OF RECEIPTS, BY F. W. PRENTISS, TREASURER, DURING FISCAL YEAR ENDING 15TH NOVEMBER, 1886.

Date.	From whom received.	On account of.	Amount.
1885.			
Nov. 16	Balance	As per my report of 1884–5	$1,417 52
	State Treasury	Being on account of interest on endowment fund, due 1st January, 1886	10,000 00
	Geo. W. Knight	2d installment rent	37 50
Dec. 15	Benj. F. Thomas	2d " "	42 50
	Jas. McGraw, assignee	Payment on notes of S. A. Bond	50 00
	Geo. W. Knight	3d installment rent	37 50
	Sam'l C. Derby	3d " "	20 00
	W. H. Scott	3d " "	38 50
	L. M. & V. Beavers	Payment note L. M. & V. Beaver $29 55	
	Same	Interest on above 1 95	31 50
	Jeremiah Ellis	Purchase money for lots 191, 192 and 193, Adams county, less expense of survey, etc., $26	22 00
	Benj. F. Thomas	3d installment rent	42 50
	Jas. McGraw, assignee	Bal. due on notes and interest of S. A. Bond	6 54
30	State Treasury	Being balance of interest on endowment fund to 1st January, 1886, less 50c. not drawn from State treasury, and thus added to endowment fund to correct error in last five semi annual paym'ts of interest, which have been drawn for 10 cts. too much, thereby reducing said fund 50 cts	6,134 74
	A. H. Tuttle	3d installment rent	47 50
	Geo. W. Knight	4th " "	37 50
	W. H. Scott	4th " "	38 50
	Sam'l C. Derby	4th " "	20 00
	Benj. F. Thomas	4th " "	42 50
	Alexis Cope, Bursar	Bal. fall term bills '85	61 00
1886.			
Feb. 25	State Treasury	Being on account of interest on endowment fund due 1st July, 1886	5,000 00
	Geo. W. Knight	5th installment rent	37 50
	Benj. F. Thomas	5th " "	42 50
	W. H. Scott	5th " "	38 50
March 25	Alexis Cope, Bursar	Winter term bills:	
	Same	Incidentals $1,370	
	Same	Chemical laboratory fees 210	
	Same	Agricultural " " 96	
	Same	Physiological " " 88	
	Same	Physical " " 84	
	Same	Mechanical " " 36	
	Same	Botanical " " 5	1,889 00
	Geo. W. Knight	6th installment rent	37 50
	W. H. Scott	6th " "	38 50
	Benj. F. Thomas	6th " "	42 50
	A. H. Tuttle	7th and 8th installment rent, 1884 and 1885	70 00

STATEMENT IV.—Continued.

Date.	From whom received.	On account of.	Amount.
1886.			
March 30	Vincent Beaver	Bal. Beaver 5-year note $2 92	
	Same	Int. " " " 08	
			$3 00
	Benj. F. Thomas	7th installment rent	42 50
	Geo. W. Knight	7th " "	37 50
April 24	State Treasury	Being on account of interest on endowment fund due 1st July, 1886	5,000 00
	W. H. Scott	7th installment rent	38 50
	Sam'l C. Derby	5th, 6th and 7th installment rent..	60 00
May 4	J. R. English	Notes J. R. English, one and two years, $39 each.....$78 00	
	Same	Interest on above 11 24	
			89 24
	Benj. F. Thomas	8th installment rent	42 50
June 8	W. H. Scott	Stamps sold to students	9 42
	Same	8th installment rent	38 50
	Geo. W. Knight	8th " "	37 50
	Same	9th " "	37 50
	Benj. F. Thomas	9th " "	42 50
	W. H. Scott	9th " "	38 50
	Agricultural Experiment Station	Am't due Prof. Weber for chemical work	300 00
18	Alexis Cope, Bursar	Spring term bills:	
	Same	Incidental fees $1,198	
	Same	Chemical laboratory fees... . 176	
	Same	Agr'l chemical " " 96	
	Same	Physiological " " 72	
	Same	Physical " " 70	
	Same	Mechanical " " 45	
	Same	Stall rent 14	
			1,671 00
30	State Treasury	Being balance of interest on endowment fund to 1st July, 1886..	6,135 24
	Benj. F. Thomas	10th installment rent	42 50
	Geo. W. Knight	10th " "	37 50
	Thos. J. Godfrey	Being trustees' expenses paid trustees from treasury of university during year 1885-6, and then drawn from State treasury in respective totals and paid into university treasury	121 95
	Seth H. Ellis		90 40
	Lucius B. Wing		91 50
	Peter H. Clark		84 06
	Thos. A. Cowgill		94 15
	Same		
Aug. 30	Sidney A. Norton	Apparatus and supplies sold students	137 88
	Jas. B. Jamison	Being trustees' expenses paid from treasury of university during year 1885-6, and then drawn from state treasury and paid into university treasury	90 01
	W. H. Scott	10th installment rent	38 50
	J. M. Stuart for S. C. Derby	th " "	20 00
Sept. 23	State Treasury	Being on account of interest on endowment fund due 1st January, 1887	5,000 00
Oct. 16	Benj. F. Thomas	1st installment rent, 1886-7	42 50
	Geo. W. Knight	1st " "	37 50
Nov. 3	H. A. Weber, farm man'r	Proceeds of farm	1,500 00
	W. H. Scott	1st and 2d installment rent, 1886-7	77 00

STATEMENT IV.—Continued.

Date.	From whom received.	On account of.		Amount.
1886.				
Nov. 3	Geo. W. Knight	2d installment rent, 1886-7		$37 50
	Benj. F. Thomas	2d " "		42 50
4	Alexis Cope, Bursar	Fall term bills:		
	Same	Incidentals	$1,595	
	Same	Chemical laboratory fees	250	
	Same	Agr'l chemical " "	152	
	Same	Physical " "	91	
	Same	Mechanical " "	63	
	Same	Physiological " "	35	
	Same	Pharmacy " "	32	
	Same	Botanical " "	6	
	Same	Stall rent	24	
				2,248 00
	Same	Sale old carpet		6 00
12	A. H. Tuttle	4th, 5th, 6th, 7th, 8th, 9th and 10th installment rent 1885-6, and 1st and 2d installment rent 1886-7		427 50
				$49,214 15

STATEMENT V.

DETAILED STATEMENT OF DISBURSEMENTS, BY F. W. PRENTISS, TREASURER, DURING FISCAL YEAR ENDING NOVEMBER 15, 1886.

Date.	To whom paid.	For what purpose.	No.	Amount.
1885.				
Nov. 16	A. P. Blocksom	Repairs of arms and equip'ts	1	$34 46
	Samuel Findlay	Adv'g in Educat'l Monthly	2	15 00
	The Druggists' Circular	" school of pharmacy	3	15 00
	Columbus Dispatch	" veterinary clinic	4	10 00
	The Columbus Record	" " "	5	7 00
	George H. Twiss	Stationery	6	8 10
	George M. Maris & Co	Locks, keys, etc	7	3 85
	same	Glass and putty	8	1 18
	City Boiler Works	Rep'g boiler, etc., horticultu'l building	9	343 13
	Blackwood, Green & Co	Repairing roof	10	26 03
	S. P. Watt	Rep'g Dr. Townshend's house	11	9 60
	Martin Bryant	1¾ days digging around pump pit and 3 days helper to mason, horticultural b'ldg.	12	7 12
	Col. Brass and S. P. Works	Fittings for general repairs	13	3 60
	R. O. Smith & Co	Lumber—dorm. coal houses	14	9 55
	N. C. Nichols	10 hrs. repg. dorm. bath-room	15	1 50
	Noble Patterson	Labor and material, horticultural building	16	11 90
	Emmit Mason	22 hrs. labor on st'm pipes, etc	17	5 50
	J. M. Harner	Term fees refunded on acct. of illness	18	8 00
20	Col. Water Works	Water rent from May 1 to Nov. 1, 1885	19	85 2
28	W. H. Scott	Salary Nov., '85, installment	20	300 0
	Edward Orton	" "	21	225 0

STATEMENT V.—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1885.				
Nov. 28	S. A. Norton	Salary Nov., '85, installment	22	$225 00
	N. S. Townshend	" "	23	225 00
	A. H. Tuttle	" "	24	225 00
	S. W. Robinson	" "	25	225 00
	N. W. Lord	" "	26	100 00
	Sam'l C. Derby	" "	27	225 00
	W. R. Lazenby	" "	28	225 00
	J. R. Smith	" "	29	225 00
	A. H. Weber	" "	30	200 00
	Benj. F. Thomas	" "	31	225 00
	George C. Comstock	" "	32	200 00
	George W. Knight	" "	33	200 00
	A. P. Blocksom	" "	34	50 00
	C. Newton Brown	" "	35	120 00
	Alice K. Williams	" "	36	100 00
	David O'Brine	" "	37	90 00
	George W. McCoard	" "	38	120 00
	J. E. Randall	" "	39	80 00
	Jos. E. Bradford	" "	40	100 00
	A. H. Welsh	" "	41	120 00
	H. P. Smith	" "	42	15 00
	Emma C. Lehner	" "	43	12 50
	Vernon J. Emery	" "	44	12 50
	Alexis Cope	Salary to Dec. 1, '85	45	100 00
	F. W. Prentiss	" " "	46	33 33
	H. J. Detmers	Salary Nov., '85, installment	47	100 00
Dec. 15	R. W. Baker	3½ days' as mason's helper at tank pit	48	5 25
9	H. W. Knight	Building sewers for new residences, to be paid out of Va. military land funds	49	339 30
	Jas. McDowell	Labor on tank	50	11 25
11	Noble Patterson	Labor on tank pit and helper	51	45 75
17	M. F. Capron	Rep'g dorm. and eng. house	52	4 92
21	W. H. Hannum	2 days' labor repairing boiler house and dormitory	53	2 70
	Adams Express Co	Freight on goods	54	6 70
	Col. Brass and S. P. Works	Pipes, etc., rep'rs st'm heat'g	55	54 84
	George M. Maris & Co	Supplies	56	7 04
	Braun & Bruck	Borax, oils, etc	57	5 00
	Stitt, Price & Co	30 measures of lime	58	3 00
15	Columbus Transfer Co	Drayage and freight	59	4 44
	Blackwood, Green & Co	Supplies for University	60	11 25
	D. Y. Murdock	Adv'g in Ohio Con. Minutes	61	6 00
	Bowe & Beggs	Carpets, etc., sig. serv. obs'er	62	40 00
	W. U. Elliott	Repairing bulletin boards	63	90
	same	Bal. due on contract, repairing steam heating	64	79 45
23	W. H. Scott	Salary Dec., '85, installment	65	300 00
	Edward Orton	" "	66	225 00
	Sidney A. Norton	" "	67	225 00
	Norton S. Townshend	" "	68	225 00
	A. H. Tuttle	" "	69	225 00
	S. W. Robinson	" "	70	225 00
	N. W. Lord	" "	71	100 00
	Sam'l C. Derby	" "	72	225 00
	W. R. Lazenby	" "	73	225 00
	J. R. Smith	" "	74	225 00
	H. A. Weber	" "	75	200 00

STATEMENT V.—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1885.				
Dec. 23	Benj. F. Thomas	Salary Dec., '85, installment	76	$225 00
	George C. Comstock	" "	77	200 00
	George W. Knight	" "	78	200 00
	A. P. Blocksom	" "	79	50 00
	H. J. Detmers	" "	80	100 00
	C. Newton Brown	" "	81	120 00
	Alice K. Williams	" "	82	100 00
	David O'Brine	" "	83	90 00
	George W. McCord	" "	84	120 00
	J. E. Randall	" "	85	80 00
	Jos. N. Bradford	" "	86	100 00
	A. H. Welsh	" "	87	120 00
	H. P. Smith	" "	88	15 00
	Emma C. Lehner	" "	89	12 50
	Vernon J. Emery	" "	90	12 50
	Alexis Cope	Salary to January 1, 1 ...	91	100 00
30	F. W. Prentiss	" " "	92	33 33
	S. A. Webb	General repairs, labor acct...	93	9 33
	B. A. Eisenlohr	Repairing steam fittings.....	94	9 00
	R. O. Smith & Co	Lumber to cover tank pit.....	95	6 81
	Wm. Gardner & Son	2 gas retorts, $40; 10-laddle tile, $11	96	51 00
	Wassall Fire Clay Co	¾ bbl. fire-clay	97	1 00
	Col. Brass and S. P. Works	Repairs, steam pipe & fittings	98	22 12
	Strobridge Lithogra'ing Co	3,000 let'r-h'ds & 3,500 env'ps	99	40 00
	Krauss & Dobbie	Curtains for recitation-room	100	5 52
1886.				
Jan. 14	Fred. Weigold	Resurfaceing blackboards ...	101	7 52
	Jas. B Jamison	Expense, trustees	102	17 81
	Seth H. Ellis	" "	103	15 60
26	Martin Bryant	¾ days' as mason helper	104	1 12
	City Boiler Works	Repairing boiler	105	58 54
	D. W. Groff	Freight on packages	106	1 75
	Jas. G. Pulling & Co	Repairs on steam pump.....	107	22 01
	C. U. Telephone Co	Rent of instruments to April 1, 1886	108	25 00
	R. C. Needles & Co	New pumps and plumbing dormitory	109	79 60
	E. B. Armstrong	Repairing roofs, Dr. Knight's and Prof. Tuttle's	110	22 73
	Ohio State Journal	Advertising university	111	15 00
	Col. Warm Air Co	Repairing flue, Prof. Tuttle..	112	3 25
	H. A. Weber, farm man'gr	Haul'g brick and st'm pump	113	11 55
	J. H. Bennett & Co	Electric supplies, time circuit	114	33 40
	R. Jones & Son	Instruments for vete'ry dept.	115	37 25
	Braun & Bruck	Supplies, veterinary dept.....	116	46 03
	Holden Bros	Soap, lye and broom	117	18 50
	Noble Patterson	Setting gas retorts	118	20 00
	Col. Brass & St. Pipe W'ks	Pipe and fittings for repairs..	119	28 55
	Frank A. Ray	½ day's labor, repairs	120	1 13
	S. P. Watt	Repair'g at Dr. Townshend's	121	8 50
	Columbus Transfer Co	Freight, etc., gas retorts.....	122	17 24
	West. Union Telegraph Co	Messages	123	25
	The Lantern Pub. Co	Advertising university.....	124	10 00
	Geo. M. Maris & Co	Glass and hardware, uni'vry	125	5 10
	Edward Orton	Expenses att'g farmers' inst..	126	14 55
29	Seth H. Ellis	Expense trustees	127	9 35
	W. H. Scott	Salary Jan'y, '86, installment	128	300 00
	Edward Orton	" "	129	225 00

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1886.				
Jan. 29	N. S. Townshend	Salary Jan'y, '86, installment	130	$225 00
	Sidney A. Norton	" "	131	225 00
	A. H. Tuttle	" "	132	225 00
	S. W. Robinson	" "	133	225 00
	N. W. Lord	" "	134	100 00
	Samuel C. Derby	" "	135	225 00
	W. R. Lazenby	" "	136	225 00
	Jos. R. Smith	" "	137	225 00
	H. A. Weber	" "	138	200 00
	Benj. F. Thomas	" "	139	225 00
	Geo. C. Comstock	" "	140	200 00
	Geo. W. Knight	" "	141	200 00
	A. P. Blocksom	" "	142	50 00
	H. J. Detmers	" "	143	100 00
	C. Newton Brown	" "	144	120 00
	Alice Williams	" "	145	100 00
	David O'Brine	" "	146	90 00
	Geo. W. McCoard	" "	147	120 00
	J. E. Randall	" "	148	80 00
	Joseph Bradford	" "	149	100 00
	A. H. Welsh	" "	150	120 00
	H. P. Smith	" "	151	15 00
	Emma C. Lehner	" "	152	12 50
	Alexis Cope	Salary to February 1, 1886	153	100 00
	Vernon J. Emery	" Jan'y, '86, installment	154	12 50
	F. W. Prentiss	" to Feb. 1, 1886	155	33 33
Feb. 3	H. T. Stephens	Care of arms and equipment fall and winter '85–6	156	10 00
	Wassall Fire-clay Co	1 barrel of fire-clay	157	1 50
	Geo. M. Maris & Co	Paints, oils, etc	158	1 55
	Col. Brass & St. Pipe W'ks	Repairing pipes, tongs, etc.	159	16 02
	Kelly & Co	Repairing force pump Dr. Knight's	160	3 00
	Blackwood, Green & Co	Rep. conductor at dormitory	161	1 25
	J. M. Stuart	Carriages for trustees	162	8 00
	Frank A. Ray	Repairing locks and bulletin boards	163	55
	N. S. Townshend	Expenses trip to Washington	164	33 75
	H. J. Detmers	" attn'g farmers' inst	165	13 75
	Edward Orton	" "	166	5 10
	W. R. Lazenby	" "	167	18 35
	Krauss & Dobbie	5⅔ yards. oil-cloth, ladies' gymnasium	168	2 83
	Adam Schneider	Paving brick for sidewalk	169	105 58
10	Columbus post office	1,500 2c stamps and 500 postal cards	170	35 00
27	W. H. Scott	Salary Feb., '86, installment	171	300 00
	Edward Orton	" "	172	225 00
	Sidney A. Norton	" "	173	225 00
	N. S. Townshend	" "	174	225 00
	A. H. Tuttle	" "	175	225 00
	S. W. Robinson	" "	176	225 00
	N. W. Lord	" "	177	100 00
	Samuel C. Derby	" "	178	225 00
	W. R. Lazenby	" "	179	225 00
	J. R. Smith	" "	180	225 00
	H. A. Weber	" "	181	200 00
	Benjamin F. Thomas	" "	182	225 00

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1886.				
Feb. 27	George C. Comstock	Salary Feb., '86, installment	183	$200 00
	George W. Knight	" "	184	200 00
	A. P. Blocksom	" "	185	50 00
	C. Newton Brown	" "	186	120 00
	Alice K. Williams	" "	187	100 00
	David O'Brine	" "	188	90 00
	George W. McCoard	" "	189	120 00
	J. E. Randall	" "	190	80 00
	J. N. Bradford	" "	191	100 00
	A. H. Welsh	" "	192	120 00
	H. J. Detmers	" "	193	100 00
	Horace P. Smith	" "	194	15 00
	Emma C. Lehner	" "	195	12 50
	V. J. Emery	" "	196	12 50
	Alexis Cope	Salary to March, 1886	197	100 00
	F. W. Prentiss	" " 1886	118	33 33
Mar.	Col. Brass & St. Pipe W'ks	Fittings and repairing steam heating	199	19 81
	James Kelley	Salary to 1st March, 1886	200	70 00
	Wassall Fire-clay Co	500 bbls. fire-clay, $1.50; 400 fire-brick, $1.80	201	14 70
	William Taylor	1 barrel salt	202	1 25
	Borger Bros. & Co	Repairing boilers	203	34 78
	Jas. G. Pulling	Forging plugs and bolts for boilers	204	3 06
	A. H. Tuttle	Expenses attn'g farmers' inst	205	12 65
	Edward Orton	" "	206	6 00
	A. H. Smythe	Stationery	207	12 15
	Aston & Huff	Rep. mantel President Scott's	208	2 90
	E. O. Randall	Papering Prof. Tuttle's	209	40 00
	Siebert & Lilley	Record of students & freight	210	20 34
	Central Union Tel. Co	Rent time signal line to 15th February, 1887	211	25 00
	Robinson & Burr	Supplies veterinary dep't	212	20 52
27	Noble Patterson	Repairs, etc	213	7 75
	W. H. Scott	Salary Mar., '86, installment	214	300 00
	Edward Orton	" "	215	225 00
	N. S. Townshend	" "	216	225 00
	S. A. Norton	" "	217	225 00
	Albert H. Tuttle	" "	218	225 00
	S. W. Robinson	" "	219	225 00
	N. W. Lord	" "	220	100 00
	Samuel C. Derby	" "	221	225 00
	W. R. Lazenby	" "	222	225 00
	J. R. Smith	" "	223	225 00
	H. A. Weber	" "	224	200 00
	Benjamin F. Thomas	" "	225	225 00
	Geo. C. Comstock	" "	226	200 00
	Geo. W. Knight	" "	227	200 00
	A. P. Blocksom	" "	228	50 00
	H. J. Detmers	" "	229	100 00
	C. Newton Brown	" "	230	120 00
	Alice K. Williams	" "	231	100 00
	David O'Brine	" "	232	90 00
	George W. McCoard	" "	233	120 00
	J. S. Bradford	" "	234	100 00
	A. H. Welsh	" "	235	120 00
	Horace P. Smith	" "	236	15 00

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	
1886.				
Mar. 27	Vernon J. Emery	Salary, Mar., '86, installment	237	$12 50
	Emma C. Lehner	" " "	238	12 50
	Alexis Cope	" to 1st April, 1886	239	100 00
	F. W. Prentiss	" " "	240	33 33
	Columbus post-office	Postage stamps	241	62 00
April 7	Chas. N. Marple	Salary to 1st April, 1886	242	30 00
9	E. H. Mark	" " "	243	50 00
10	Col. Hock'g Coal & Iron Co	On account of coal delivered	244	200 21
	Kelley & Co	Repairs Prof. Knight's residence	245	4 25
	Col. Brass & St. Pipe W'ks	Repairs steam-heating	246	2 60
	Noble Patterson	Kalsomining Prof. Lord's room	247	2 00
	W. H. Scott	Express and postage on reports	248	8 93
	Same	Expenses att'g farmers' inst.	249	15 50
	Columbus Transfer Co	Freight and drayage	250	5 44
	Halm & Bellows Fur. Co.	Repairing chairs	251	10 00
	Vacuum Oil Co	10 gallons cylinder oil	252	8 50
	The Portland Cement Co.	4 sacks Portland cement	253	2 65
	John Allyn	5 charts	254	7 50
	D. W. Groff	Freight and drayage	255	4 60
	Central Paper Co	100 sheets examination paper	256	35 00
	A. H. Smythe	Stationery	257	3 17
	Western Union Tel. Co	Messages	258	1 17
	Siebert & Lilley	1,500 envelopes for reports	259	21 00
	C. H. Haniwalt	67 loads dirt for farm	260	10 55
	C. L. Herrick	Advertising university	261	2 00
	Hann & Adair	500 blank vouchers	262	2 65
	Central Union Tel. Co	Rent, 2 installments, to July 1st, '86, $25; also 2 messages 50c	263	25 50
	Stitt, Price & Co	20 bushels lime	264	3 20
	H. J. Detmers	Express charges paid	265	65
	Columbus post-office	Postage for Dr. Scott	266	60 00
16	Thomas J. Godfrey	Expense trustee	267	27 15
24	George W. Knight	Salary, April '86, installment	268	200 00
	W. H. Scott	" " "	269	300 00
	Sidney A. Norton	" " "	270	225 00
	N. S. Townshend	" " "	272	225 00
	Albert Tuttle	" " "	273	225 00
	S. W. Robinson	" " "	274	225 00
	N. W. Lord	" " "	275	100 00
	Samuel C. Derby	" " "	276	225 00
	W. R. Lazenby	" " "	277	225 00
	J. R. Smith	" " "	278	225 00
	H. A. Weber	" " "	279	200 00
	Benjamin F. Thomas	" " "	280	225 00
	George C. Comstock	" " "	281	200 00
	A. P. Blocksom	" " "	282	50 00
	H. J. Detmers	" " "	283	100 00
	C. Newton Brown	" " "	284	120 00
	Alice K. Williams	" " "	285	100 00
	David O'Brine	" " "	286	90 00
	George W. McCoard	" " "	287	120 00
	Jos. N. Bradford	" " "	288	100 00
	A. H. Welsh	" " "	289	120 00
	H. P. Smith	" " "	290	15 00
24	Alexis Cope	Salary to 1st May, 1886	291	100 00

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1886.				
April 24	F. W. Prentiss	Salary to 1st May, 1886	292	$33 33
	Emma C. Lehner	" April, '86, installment	293	12 50
	V. J. Emery	" " "	294	12 50
	E. H. Mark	" " "	295	50 00
	C. A. Marple	" " "	296	30 00
	H. H. Parry	" to 1st May, 1886	297	112 50
28	Peter H. Clark	Exp. att'g Apr. meet'g trust s	298	13 50
	Thomas J. Godfrey	" " "	299	16 00
	J. B. Jamison	" " "	300	17 00
	L. B. Wing	" " "	301	10 25
30	W. H. Scott	Postage, etc	302	4 71
	Holden Bros	22 gallons coal oil, @ 12½c	303	2 75
	Frank A. Ray	25 hours' work carpenter engineer department	304	5 68
	M. F. Capron	24 hrs. work engineer's dept	305	5 40
	U. S. Express Co	Freight pkg. physical dept	306	50
	Ward Bros	250 maps adv'g university	307	12 50
	The Lantern Pub. Co	Advertising university	308	22 25
	Col. Brass & St. Pipe W'ks	1 dozen gas burners	309	75
	W. H. Chever	½ dozen brushes and handles	310	6 00
	Columbus Transfer Co	Freight and drayage	311	3 60
	R. O. Smith & Co	Lumber for engineer's dept	312	10 66
	J. D. Riggs	Furnish'g forceps vet'y dept	313	1 25
	H. T. Stephens	Copying and mailing circulars school	314	6 60
	Col. Hock'g Coal & Iron Co	On account coal delivered	315	79 35
7	Columbus post-office	400 1c. and 300 2c. stamps	316	10 00
	Jno. Minton	1 load sand for gas retorts	317	1 65
	Wm. Halley	Plumbing at Dr. Knight's	318	6 65
	Columbus Transfer Co	Freight and drayage	319	2 94
	George M. Maris & Co	Hardware, etc	320	12 36
	Hann & Adair	50 note circulars	321	75
	N. S. Townshend	Expenses att'g farmers' inst	322	21 10
	R. O. Smith & Co	Lumber for casing pipes min. department	323	3 46
	Edward Orton	Expenses paid W. C. Jones for repairing	324	10 50
	W. C. Jones	Repairing model of state	325	20 00
	The Critic	Advertising university	326	8 00
	Col. Brass & St. Pipe W'ks	One self-closing cock	327	1 50
	American Express Co	Express charges on pkg. for university	328	6 15
	A. P. Blocksom	Supplies cartridges, arms and equipment	329	7 50
	Columbus Water-Works	Water rent, 6 months to 1st May, '86	330	114 14
	J. M. Stuart	Carriages	331	5 00
	W. H. Scott	Salary, June, '86, installment	332	300 00
June 30	Sidney A. Norton	" " "	233	225 00
	N. S. Townshend	" " "	334	225 00
	A. H. Tuttle	" " "	335	225 00
	N. W. Lord	" " "	336	100 00
	S. W. Robinson	" " "	337	225 00
	S. C. Derby	" " "	338	225 00
	W. R. Lazenby	" " "	339	225 00
	J. R. Smith	" " "	340	225 00
	H. A. Weber	" " "	341	200 00
	B. F. Thomas	" " "	342	225 00
	Geo. C. Comstock	" " "	343	200 00

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1886.				
June 30	Geo. W. Knight	Salary, June, '86, installment	344	$200 00
	A. P. Blocksom	" " "	345	50 00
	H. J. Detmers	" " "	346	100 00
	C. Newton Brown	" " "	347	120 00
	Alice K. Williams	" " "	348	100 00
	David O'Brine	" " "	349	90 00
	Geo. W. McCoard	" " "	350	120 00
	E. H. Mark	" " "	351	50 00
	C. A. Marple	" " "	352	30 00
	Jas. N. Bradford	" " "	353	100 00
	A. H. Welsh	" " "	354	120 00
	H. P. Smith	" " "	355	15 00
	Emma C. Lehner	" " "	356	12 50
	V. J. Emory	" " "	357	12 50
	F. W. Prentiss	Salary to 1st of July, 1886	358	33 33
	Alexis Cope	" "	359	100 00
	M. F. Capron	Cleaning mach'y mech. lab.	360	6 20
	Williams & Co.	Two city directories (copies)	361	6 50
	Lantern Publishing Co	Advertising university	362	10 00
	John D. Riggs	Putting spring in prest. chair	363	95
	Columbus Post-office	2 M 1-c. stamps for president.	364	20 00
	Columbus Transfer Co	Freight and drayage	365	6 97
	Nitschke Bros	Printing blanks	369	28 40
	Kilbourne, Jones & Co	Hardware	370	1 37
	B. E. Merry	Folding and directing circulars, 17 prs., @ 55c	366	2 55
	Nitschke Bros	1 M type-writting letters, and 1 M envelopes	367	9 15
	Makio	1 page advertising in Makio	368	15 00
	Geo. H. Twiss	1 index	371	1 00
	"	½ ream, 12 lbs. cap paper	372	1 20
	Strobridge Lithograph'g Co	20 diplomas on parchment	373	20 00
	Z. L. White & Co	Ribbons for diplomas	374	5 23
July 8	James W. Queen & Co	One Hoffman's nitrometer chem. lab	375	3 00
	Gazette Printing Co	50sets examination questions chem. lab	376	2 00
	Kauffman, Lattimer & Co	Supplies chem. lab	377	7 78
	Einor & Anend	" "	378	29 20
	Samuel C. Derby	150 p. c. circulars	379	2 35
	D. W. Groff	Freight and drayage	380	9 94
	Strobridge Lithograph'g Co	3 parchment diplomas	381	3 00
	Siebert & Lilley	2 warrant books	382	10 75
	Combination Gas Mach. Co	Hand-wheel for machine	383	2 35
	Columbus Barracks Band	Music during commencem'nt	384	25 00
	Aston & Huff	Repairing stoves	385	3 34
	Cen. Union Telephone Co	Rent 2 inst's for yr. ending 1st Oct., 1886, and 1 message	386	25 25
	Ohio State Journal Co	Advertising June entrance examination	387	4 80
	Columbus Dispatch	Advertising June entrance examination	388	4 80
	Nitschke Bros	Stationery	389	17 00
	Braun & Bruck	Supplies vet'y dep't	390	2 40
	W. U. Telegraph Co	Message	391	39
	Noble Patterson	Mason work repairs	392	21 75
	J. M. Stuart	Carriages for trustees	393	16 00
	W. R. Lazenby	Repairs and care hort. build'g winter and spring term, '86	394	16 40

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1886.				
July 8	McCune, Lonnis & Griswold	Hardware and supplies	395	$78 39
	A. P. Blocksom	Supplies mil. dep't	396	3 13
	Sidney A. Norton	" chemical dep't	397	47 51
	Col. Brass & S. P. Works	General repairs	398	8 90
24	Halm & Bellows Furn. Co	43 doz. chairs during commencement	399	32 25
	W. H. Hannum	2 days cleaning well	400	4 00
	C. H. Aldrich	" "	401	4 00
	Columbus Post-office	4 M 2-c. stamps on summer announcement	402	80 00
Aug. 2	Alexis Cope	Salary to 1st August, 1886	403	100 00
	F. W. Prentiss	" " "	404	33 33
	Columbus Post-office	2 M 2-c. stamps on summer announcement	405	40 00
	Geo. M. Maris & Co	Supplies for ag. chem. dep't	406	50
10	R. O. Smith & Co	Lumber " "	407	10 30
	Wm. Gardner & Son	2 gas retorts and tile	408	52 50
	Columbus Dispatch	Adver for proposals for coal	409	5 25
	Ohio State Journal Co	" "	410	6 00
	Columbus Transfer Co	Freight and drayage	411	12 85
	Nitschke Bros	Print'g summer announcem't	412	378 84
	Columbus Cabinet Co	1 case for geological museum	413	45 00
	W. U. Telegraph Co	Messages for Dr. Scott	414	75
	Siebert & Lilley	Inventory books	415	41 00
	A. N. Graham	Labor and material on plas. cast of Ohio	416	10 65
	Geo. M. Maris	Supplies chemical dep't	417	4 40
	Door, Sash & Lumber Co	" "	418	3 06
28	Frank A. Ray	1½ days' work on case for chemical dep't	419	3 38
	M. F. Capron	56 hours' work on case for chemical dep't	420	12 60
	W. B. Veits	1 day's lab. on ag'l chem. dep.	421	2 00
	Daily and Weekly Times	Advertising entr. ex., $4.80; coal contract, $5.40	422	10 20
30	Alexis Cope	Salary to 1st Sept., 1886	423	100 00
	F. W. Prentiss	" "	424	33 33
Sept. 6	Nat. Stockman & Farmer	Advertising university	425	9 79
	Columbus Record	" "	426	4 00
	Cranston & Stowe	" "	427	6 30
	Munns Co	" "	428	28 00
Oct. 14	J. D. Riggs	Visitors' attendant during state fair, 44 hours, @ 15c	429	3 53
	C. W. Misloh	Visitors' attendant during state fair, 44 hours, @ 15c	430	6 64
	W. B. Veits	Visitors' attendant during state fair, 4 days, @ $1.50	431	6 00
	L. Westfall	Visitors' attendant during state fair, 39 hours, @ 15c	432	5 85
	C. E. S. Kinnor	Visitors' attendant during state fair, 18 hours, @ 15c	433	2 70
	Siebert & Lilley	1 Matriculation record and letter file	434	28 00
	U. S. Express Co	Freight on package	435	5 67
	Adams Express Co	" "	436	4 95
	W. U. Telegraph Co	Messages	437	62
	Bausch & Lomb Optical Co	Supplies physiological dep't	438	92 34
	R. Smith & Co	" " "	439	25 57
	Bausch & Lomb Optical Co	" " "	440	6 89

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1886.				
Oct. 14	Bachrach & Bro	4 packages celloidine	441	$4 00
	R. Jones & Son	Supplies physiological dep't	442	86 79
	Kilbourne, Jones & Co	" " "	443	2 40
	Columbus Rubber Co	" " "	444	6 66
	Wells & Tracey	2 doz. brooms, @ $2 85	445	5 70
	A. H. Smythe	60 spiritual songs, @ 50c	446	30 00
	Krauss & Dobbie	New carpet for chapel	447	88 14
	Stitt, Price & Co	2 M lime	448	2 00
	Kilbourne, Jones & Co	1 Yale lock and bolt for Dr. Detmers	449	2 15
	Geo. M. Maris & Co	Hardware, etc	450	19 18
	Chas. Wheeler	New pump, etc., for Derby residence	451	22 00
	Engineering News Pub. Co	Advertising university	452	5 00
	Cornly & Co	" "	453	4 50
	Mast, Crowell & Co	" "	454	41 00
	Heintzelman & Taylor	" " in ba.	455	6 00
	The Druggist Circular	" "	456	5 00
	Columbus Dispatch	Adver. for rent for university	457	2 00
	Ohio State Journal Co	Printing class cards, etc	458	22 50
	Hershiser & Snyder	Lumber for mech'l dep't	459	9 45
	Willard Gleason	Setting glass Prof. Thomas' res., painting, etc., eng. dep't	460	4 05
	Clara Fisher	Salary Sept., 1886, installment	461	15 00
29	W. H. Scott	" Oct., 1886, "	462	300 00
	S. W. Robinson	" " "	463	225 00
	Sam'l C. Derby	" " "	464	225 00
	H. W. Lord	Salary Oct., '86, installment	465	100 00
	W. R. Lazenby	" "	466	225 00
	J. R. Smith	" "	467	225 00
	H. A. Weber	" "	468	225 00
	Benjamin F. Thomas	" "	469	225 00
	Geo. C. Comstock	" "	470	225 00
	Geo. W. Knight	" "	471	225 00
	H. J. Detmers	" "	472	120 00
	A. P. Blocksom	" Sept. & Oct, '86, "	473	100 00
	Ernst A. Eggers	" Oct., '86, "	474	120 00
	Geo. B. Kauffman	" Sept. & Oct., '86, "	475	80 00
	David O'Brine	" Oct., '86, "	476	100 00
	George W. McCoard	" " "	477	120 00
	Jas. N. Bradford	" "	478	100 00
	A. H. Welsh	" "	479	120 00
	Vernon J. Emery	" "	480	12 50
	Clara Fisher	" "	481	15 00
	F. W. Prentiss	" to 1st Nov., 1886	482	33 33
	Alexis Cope	" " "	483	100 00
	L. E. Matthews	Slating 1,585 sq. yds. blackboard, @ 15c	484	79 00
	Jno. D. Riggs	Cleaning gas engine and rep governor, physical dep't	485	7 14
30	H. A. Weber, farm mana'r	Hauling and labor, men and teams, on grounds	486	43 46
Nov. 1	Washington Townsend	15½ days cleaning buildings @ $1.50	487	23 25
2	Gazette Printing Co	500 postal cards and printing same	488	6
	P. Hayden & Sons	1 ton Bloss. coal, mech. dep'	489	4 00
	King, Gilbert & Warner	1 ton Glasgow iron, "	490	20 00

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1886.				
Nov. 2	Central Union Tel. Co.....	Rent instr. qr. ending Jan. 1, '86, @ $25, and message to Newark, O., 25c.....	491	$2 25
	Holden Bros.....	Sapiolo, brushes and oil.....	492	67
	David O'Brine.....	Supplies, chemical dep't.....	493	2 37
	W. J. Flynn	Testing scales.....	494	50
	R. O. Smith & Co.....	Lumber for cases, chem. dep.	495	18 71
	D. W. Groff	Freight on packages	496	9 11
	Adams Ex. Co.....	" "	497	1 25
	Theodore Flood.....	Adv'g in Chatauqua Daily Herald.....	498	9 31
	M. J. Lawrence.....	Adv'g in Ohio Farmer	499	11 94
	Chas. F. Scott	Clerical services adv. university	500	40 00
	Geo. M. Maris & Co	3⅜ doz. blank keys, etc	501	7 28
	Jas. W. Tuller & Co	Supplies physiological dep't	502	8 50
	J. W. Meek & Co.	4 doz. glass globes, etc.....	503	20 00
	Columbus Water-works ...	Water rent ending Nov. 1,'86 6 mos.....	304	114 13
3	W. Townsend	18½ days cleaning buildings, @ $1.50.....	505	27 75
	W. Halley.....	Plumbing, etc., Dr. Scott's and Dr. Knight's.....	506	20 05
	H. A. Weber, farm mana'r	Hauling dirt, trash, etc.....	507	21 60
	Geo. M. Maris & Co.....	Supplies chemical dep't.....	508	1 00
	Fred. J. Sager	Two band chains, eng'g dep.	509	17 55
	W. & L. E. Gurley	Repairing, en'g dep't..	510	41 10
	A. Black	4 doz. excavating st'm pipes	511	6 00
	F. Weigold	Resurfacing black-boards.....	512	15 69
	Fairbanks, Morse & Co.....	1 6-ton wagon scales	513	110 00
	W. U. Tel. Co....	Messages.....	514	50
12	Col. Brass and S. P. W'ks..	Pipes and fittings, st'm heat'g	515	59 32
	Geo. H. Twiss	Class registers and stationery	516	16 74
	Col. Brass and S. P. W'ks..	Empire packing	517	3 56
	Geo. M. Maris & Co.....	132 lbs. iron, mech. dep't.....	518	3 30
	Col. Cabinet Co.....	Furniture, McCoard's recit'n room	519	15 00
	Siebert & Lilley.....	Mounting map, chem. dep't..	520	3 50
	Braun & Bruck	Sapolio, brushes, oils, etc.....	521	16 69
	R. O. Smith & Co.....	Lumber for case, chem. dep't	522	1 60
	H. L. Newton.....	3 days' labor, chem. dep't ...	523	4 50
	Total disbursement ...	.....	.....	$37,877 42
	Balance, being cash in	my hands this day		11,336 73
				$49,214 15

REPORT OF THE FINANCE COMMITTEE.

COLUMBUS, OHIO, *November* 23, 1886.

To the Board of Trustees of the Ohio State University:

The undersigned, committee on finance, having examined the accounts and vouchers of the treasurer, and compared them with the records and vouchers in possession of the secretary, we hereby certify that the report of the treasurer is correct.

T. J. GODFREY,
PETER H. CLARK.

LIST OF EMPLOYES AND COMPENSATION.

In compliance with section 7 of the organic act, passed by the Legislature of Ohio, May 1, 1878, which requires a list of "the number of Professors, officers, teachers and other employes, and the position and compensation of each, to be reported annually," I submit the following list:

William H. Scott, President	$3,000 00
Edward Orton, Professor	2,250 00
Sidney A. Norton, Professor	2,250 00
Norton S. Townshend, Professor	2,250 00
Albert H. Tuttle, "	2,250 00
Stillman W. Robinson, "	2,250 00
Nathaniel W. Lord, "	1,000 00
Samuel C. Derby, "	2,250 00
William R. Lazenby, "	2,250 00
Josiah R. Smith, "	2,250 00
Henry A. Weber, "	2,250 00
Benjamin F. Thomas, "	2,250 00
George C. Comstock, "	2,250 00
George W. Knight, "	2,250 00
Augustus P. Blocksom, "	500 00
H. J. Detmers, "	1,200 00
C. Newton Brown, Assistant Professor	1,400 00
Alice K. Williams, Instructor	1,000 00
Ernst A. Eggers, Instructor	1,200 00
George B. Kauffman, Lecturer	400 00
David O'Brine, Assistant	1,000 00
Geo. W. McCoard, Assistant	1,200 00
Benj. W. Snow, "	800 00
Joseph N. Bradford, "	1,000 00
Albert H. Welsh, "	1,200 00
Horace P. Smith, "	150 00
Alexis Cope, Secretary	1,200 00
Frederick W. Prentice, Treasurer	400 00
Clara Fisher, Assistant Librarian	150 00
Vernon J. Emery, Clerk to President	125 00
Chas. A. Roth, Florist	600 00
David Evans, Engineer	800 00
Edda C. Grove, Fireman	400 00

COLUMBUS, OHIO, *November* 15, 1886.

F. W. Prentiss, Treasurer Ohio State University:

DEAR SIR: The following appropriations and authorized expenditures of the funds of the university have been made by the trustees for the fiscal year 1886. The income of the endowment fund (so called) for the support and maintenance of the university:

Jan. 12, 1886.	For care of arms and equipments		$15 00
April 28, 1886.	Chemical department, foreign supplies		300 00
" "	Framing drawings Mining department		50 00
June 22, 1886.	Department of Geology		100 00
" " "	Chemistry		400 00
" " "	Physiology		300 00
" " "	Physics		1,000 00
" " "	Mechanical laboratory—supplies		150 00
	Student help		100 00
June 22, 1886.	Department of Drawing		10 00
" " "	Civil Engineering		150 00
" " "	Pharmacy		200 00
July 6, 1886.	Veterinary Surgery		100 00
" "	Physiology—student help		100 00

Respectfully,

ALEXIS COPE,
Secretary.

CATALOGUE

OF THE

OHIO STATE UNIVERSITY,

FOR THE YEAR 1886.

CONTENTS.

1886.

	SUNDAY.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
JULY.	...	...	...	...	1	2	3
	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	26	27	28	29	30	31
AUG.	1	2	3	4	5	6	7
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	15	16	17	18	19	20	21
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SEPT.	...	...	...	1	2	3	4
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OCT.	...	...	...	...	...	1	2
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NOV.	...	1	2	3	4	5	6
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	14	15	16	17	18	19	20
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DEC.	...	...	...	1	2	3	4
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1887.

	SUNDAY.	MONDAY.	TUESDAY	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
JAN.	...	...	...	...	...	...	1
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APRIL.	...	...	...	...	...	1	2
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1887.

	SUNDAY.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
JULY.	...	...	...	...	...	1	2
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SEPT.	...	...	...	...	1	2	3
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OCT.	...	...	...	...	...	...	1
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	16	17	18	19	20	21	22
	23	24	25	26	27	28	29
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NOV.	...	...	1	2	3	4	5
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	20	21	22	23	24	25	26
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DEC	...	...	...	...	1	2	3
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	18	19	20	21	22	23	24
	25	26	27	28	29	30	31
	...	...	...	...	...	...	...

UNIVERSITY CALENDAR.

1886.

November 25 and 26,	Thursday and Friday,	Thanksgiving Recess.
December 16,	Thursday,	Term Examinations begin.
December 22,	Wednesday,	Fall Term ends.

1887.

January 5,	Wednesday,	Winter Term begins.
February 22,	Tuesday,	Regular exercises omitted.
March 24,	Thursday,	Term Examinations begin.
March 30,	Wednesday,	Winter Term ends.
April 6,	Wednesday,	Spring Term begins.
May 21,	Saturday,	Senior Examinations end.
May 30,	Monday,	Regular exercises omitted.
June 15,	Wednesday,	Term Examinations begin.
June 19,	Sunday,	Baccalaureate.
June 20 and 21,	Monday and Tuesday,	Entrance Examinations. Commencement of Literary Societies.
June 21,	Tuesday,	Class-Day Exercises.
June 22,	Wednesday,	Commencement.
September 12 and 13,	Monday and Tuesday,	Entrance Examinations.
September 14,	Wednesday,	Registration Day.

BOARD OF TRUSTEES.

SETH H. ELLIS..... Springboro.
LUCIUS B. WING ..... Newark.
THOMAS J. GODFREY ..... Celina.
THOMAS A. COWGILL ..... Kennard.
PETER H. CLARK..... Cincinnati.
HENRY J. BOOTH ..... Columbus.
HENRY B. PERKINS ..... Warren.

OFFICERS OF THE BOARD:

LUCIUS B. WING..... *President.*
HENRY J. BOOTH..... *Vice-President.*
ALEXIS COPE ..... *Secretary.*
FRED. W. PRENTISS..... *Treasurer.*

EXECUTIVE COMMITTEE:

H. J. BOOTH, P. H. CLARK, T. A. COWGILL.

FARM COMMITTEE:

L. B. WING, S. H. ELLIS, H. B. PERKINS.

FINANCE COMMITTEE:

P. H. CLARK, T. J. GODFREY, H. B. PERKINS.

FACULTY AND INSTRUCTORS.

WILLIAM H. SCOTT, LL. D., University Grounds.
President, and Professor of Philosophy.

EDWARD ORTON, PH. D, LL. D., 104 Twentieth Street.
Professor of Geology.

SIDNEY A. NORTON, PH. D., LL. D., 299 East Town Street.
Professor of General and Applied Chemistry.

NORTON S. TOWNSHEND, M. D., University Grounds.
Professor of Agriculture.

ALBERT H. TUTTLE, M. SC., University Grounds.
Professor of Zoology and Comparative Anatomy.

STILLMAN W. ROBINSON, C. E., 1205 North High Street.
Professor of Mechanical Engineering.

NATHANIEL W. LORD, E. M., Room 16, Hayden Block, E. Broad Street.
Professor of Mining and Metallurgy.

SAMUEL C. DERBY, M. A., Indianola Place.
Professor of the Latin Language.

WILLIAM R. LAZENBY, B. AG., University Grounds.
Professor of Horticulture and Botany.

JOSIAH R. SMITH, M. A., Indianola Place.
Professor of the Greek Language.

HENRY A. WEBER, PH. D., University Grounds.
Professor of Agricultural Chemistry.

BENJAMIN F. THOMAS, PH. D., University Grounds.
Professor of Physics.

GEORGE C. COMSTOCK, PH. B., LL. B., 1174 North High Street.
Professor of Mathematics and Astronomy.

GEORGE W. KNIGHT, PH. D., University Grounds.
Professor of History and English Language and Literature.

H. J. DETMERS, M. V. D., East Woodruff Avenue.
Professor of Veterinary Surgery.

AUGUSTUS P. BLOCKSOM, First Lieut. 6th Cavalry, U. S. A., Park Hotel.
Professor of Military Science and Tactics, and Assistant Professor of Mathematics.

C. NEWTON BROWN, Indianola Place.
Assistant Professor of Civil Engineering.

ALICE K. WILLIAMS, 1174 North High Street.
Instructor in the French Language.

ERNEST A. EGGERS, Indianola Place.
Instructor in the German Language.

MRS. KATHERINE WESTENDORF, Cincinnati.
Instructor in Elocution.

GEORGE B. KAUFFMAN, B. S., 60 Garfield Avenue.
Lecturer on Pharmacy.

DAVID O'BRINE, E. M., M. Sc., M. D., University Grounds.
Assistant in Chemistry.

GEORGE W. McCOARD, M. A., King Avenue.
Instructor in Mathematics and Latin.

JOSEPH N. BRADFORD, M. E., 21 South Garfield Avenue.
Assistant in Drawing and Mechanical Engineering.

ALFRED H. WELSH, M. A, Cor. High Street and Third Avenue.
Assistant in History and English.

BENJAMIN W. SNOW, B. S., 1174 North High Street.
Assistant in Physics.

OTHER OFFICERS.

WILLIAM S. DEVOL,
Superintendent of Farm.

WILLIAM R. LAZENBY,
Superintendent of Grounds.

Assistant Librarian.

VERNON J. EMERY,
President's Clerk.

WILLIAM McCRACKEN,
Engineer.

OHIO GEOLOGICAL SURVEY.

OFFICERS AT THE UNIVERSITY.

EDWARD ORTON,
State Geologist.

NATHANIEL W. LORD,
Chemist.

OHIO AGRICULTURAL EXPERIMENT STATION.

OFFICERS AT THE UNIVERSITY.

NORTON S. TOWNSHEND,
Director.

WILLIAM R. LAZENBY,
Vice-Director.

HENRY A. WEBER,
Chemist.

HENRY J. DETMERS,
Veterinarian.

WILLIAM S. DEVOL,
Superintendent of Field Experiments.

WILLIAM J. GREEN,
Superintendent of Horticultural Experiments.

OHIO METEOROLOGICAL BUREAU.

OFFICERS AT THE UNIVERSITY.

BENJAMIN F. THOMAS,
Director.

EDGAR H. MARK,
Secretary.

WILLIAM B. ALWOOD,
Observer.

UNITED STATES SIGNAL SERVICE.

AUSTIN L. McRAE,
Observer of Atmospheric Electricity.

STANDING COMMITTEES OF THE FACULTY.

The university has been divided, for convenience, into and the affairs of each school have been assigned to a standing committee of the faculty. The president of the university is *ex-officio* chairman of each committee.

I. THE SCHOOL OF ARTS AND PHILOSOPHY.

PROFESSOR DERBY, *Secretary.*

PROFESSORS ORTON, NORTON, SMITH, KNIGHT, WILLIAMS.

II. THE SCHOOL OF SCIENCE.

PROFESSOR TUTTLE, *Secretary.*

PROFESSORS THOMAS, COMSTOCK, ORTON, EGGERS.

III. THE SCHOOL OF ENGINEERING.

PROFESSOR COMSTOCK, *Secretary.*

PROFESSORS LORD, ROBINSON, THOMAS, BROWN.

IV. THE SCHOOL OF AGRICULTURE AND VETERINARY SCIENCE.

PROFESSOR LAZENBY, *Secretary.*

PROFESSORS TOWNSHEND, ROBINSON, LORD, TUTTLE, WEBER, DETMERS.

V. THE SCHOOL OF PHARMACY.

PROFESSOR NORTON, *Secretary.*

DEGREES CONFERRED JUNE, 1886.

Connell, William Adams	Portsmouth, Scioto	county	E. M.
Converse, Edward Jasper	Columbus, Franklin	"	B. A.
Cunningham, George Strode	Lancaster, Fairfield	"	B. Ph.
Devol, William Stow	Marietta, Washington	"	B. Ag.
Erskine, James H	Lowellsville, Mahoning	"	E. M.
Fisher, Clara	Columbus, Franklin	"	B. A.
Hill, Frank Edwin	Neville, Clermont	"	B. Sc.
Jones, Alfred Andrew	Columbus, Franklin	"	C. E.
Keifer, William White	Springfield, Clarke	"	B. A
Masters, George Albert	Toledo, Lucas	"	C. E.
Milligan, James Porter	Rushville, Fairfield	"	B. A.
Sabine, Wallace Clement	Columbus, Franklin	"	B. A.
Schroll, Otto	" "	"	C. E.
Scott, Anna Neill	" "	"	B. A.
Smith, Horace Porter	Adams Mills, Muskingum	"	B. Sc.
Vandervoort, William P	Morrow, Warren	"	E. M.
Viets, Willis Burton	Amboy, Ashtabula	"	E. M.
Watt, Sern Perley	Jamestown, Nebraska		M. E.

CATALOGUE OF STUDENTS.

This catalogue contains only the names of those students who have been in attendance during the first term of the current college year, together with the small number who entered during the second and third terms of the last year but have not returned. Besides these, there have been in attendance within the year 144 students whose names appeared in the last catalogue, but as they are not now in the university their names are not republished. The entire number of different students in attendance within the year was 674.

RESIDENT GRADUATES.

Converse, Edward Jasper	B.	A.	Columbus, Franklin county.
Fisher, Clara	B.	A.	" "
Jones, Alfred Andrew	C.	E.	" "
Schroll, Otto	C.	E.	" "
Scott, Anna Neill	B.	A.	" "

SENIOR CLASS.

Charters, William F.	B.	Ph.	New Lisbon, Columbiana county.
Converse, Howard, P.	B.	Sc.	Columbus, Franklin "
Corns, Harry	B.	A.	London, Madison "
Emery, Vernon J.	B.	A.	Napoleon, Henry "
Hannum, William H.	B.	A.	Lancaster, Fairfield "
Hine, Lucius A.	E.	M.	Milan, Erie "
Hyde, Wilby G.	B.	A.	New Holland, Pickaway "
Hazlett, Robert, Jr.	C.	E.	Wheeling, W. Va.
Hunt, William F.	M.	E.	Miamsburg, Montgomery "
McPherson, William	B.	Sc.	Xenia, Greene "
Mullay, Annie	B.	Ph.	Columbus, Franklin "
Myers, Joseph S.	B.	A.	" " "
Myers, Uriah H.	E.	M.	" " "
Payne, Halbert E.	M.	E.	Fostoria, Seneca "
Ray, Frank A.	E.	M.	Jefferson, Ashtabula "
Reeves, Archibald C.	C.	E.	Dayton, Montgomery "
Scott, Daisy M.	B.	A.	Columbus, Franklin "
Scott, May M.	B.	A.	" " "
Taylor, Joseph R	B.	A.	Marietta, Washington "
Woodworth, Henry J.	B.	Sc.	Jefferson, Ashtabula "
Zaumsiel, Oscar C.	C.	E.	Ripley, Brown "

JUNIOR CLASS.

Aldrich, Chester H	B.	A	Pierpont, Ashtabula county.
Atkins, Gains G	B.	A	Columbus, Franklin "
Baker, Gano R., B. A	C.	E	Yellow Springs, Greene county.
Antioch College.			
Ball, Fred S	B.	Ph	Portsmouth, Scioto "
Brundage, Lawrence H	B.	Sc	Xenia, Greene "
Cellarius, Frederick J	C.	E	Dayton, Montgomery "
Crawford, William S	B.	Ph	Cuyahoga Falls, Summit "
Detmers, Fredericka	B.	Sc	Columbus, Franklin "
Fitzpatrick, John J	E.	M	Columbiana, Columbiana "
Fravel, George B	M.	E	Columbus, Franklin "
Garrett, Howard T	M.	E	" " "
Gates, Harry M	C.	E	" " "
Hartwell, Arthur	M.	E	Xenia, Greene "
Hayes, Seth	B.	Sc	Columbus, Franklin "
Hedges, Henry	B.	A	Urbana, Champaign "
Lehman, Richard A	B.	A	Columbus, Franklin "
Lord, Henry C	B.	Sc	Cincinnati, Hamilton "
Miller, Ira H	B.	A	Columbus, Franklin "
Mix, Edgar W	B	Sc	" " "
Oster, Albert C	C.	E.	Mansfield, Richland "
Scott, Emma	B.	Sc	Columbus, Franklin "
Stephens, Herbert T	B.	A	Adrian, Michigan.
Wadsworth, F. L. Olcott	M.	E	Wellington, Lorain "
Webb, Scott A	B.	Ph	Jefferson, Ashtabula "
Wilgus, James A	B.	Ph	Conover, Miami "

SOPHOMORE CLASS.

Bloom, George	C.	E	Xenia, Greene county.
Bownocker, John A	B.	Sc	Amanda, Fairfield county.
Boyd, Emma	B.	Ph	Plain City, Madison county.
Brown, Frederick W	E.	M	Zanesfield, Logan "
Carle, Roscoe L	B.	Sc	Tiffin, Seneca "
Capron, Marshall F	M.	E	Conneaut, Ashtabula "
Caylor, Chauncey L	B.	Sc	Columbus, Franklin "
Eckhardt, Robert	B.	Ph	" " "
Fawcett, William C	C.	E	Kilgore, Carroll "
Floto, Julius	C.	E	Cincinnati, Hamilton "
Gaines, Charles E	B.	Ph	Columbus, Franklin "
Garber, Alberta D	B.	Ph	" "
Gregg, Frank B	B.	Ph	Springboro, Warren "
Hagler, Howard	B.	Sc	Washington C. H., Fayette county.
Hall, Harrison R	E.	M	Kent, Portage "
Hawley, Charles A	B.	Ph	Milan, Erie "
Heller, Albert H	C.	E	Wapakoneta, Auglaize "
Horton, Henry P	B.	Ph	Pomeroy, Meigs "
Jones, Jesse L	B.	A	Martin's Ferry, Belmont "
Kemmler, Edward A	C.	E	Columbus, Franklin "
Kiehl, Harry A	M.	E	Dayton, Montgomery "
Kirker, Harry L	B.	Sc	Ironton, Lawrence "
Lincoln, John C	M.	E	Columbus, Franklin "
Meek, William W	B.	Ph	" " "
Mesloh, Charles W	B.	A	New Bremen, Auglaize "
Miller, Harry F	M.	E	Columbus, Franklin "
Morrey, William T	B.	A	Chester Hill, Morgan "
Neil, Hannah	B.	Ph	Columbus, Franklin "
Newton, Henry S	B.	Sc	Newark, Licking "
Oppenheimer, Samuel	C.	E	Marion, Marion "
Raymund, Frank M	B.	A	Akron, Summit "
Rickey, Alla B	B.	Ph	Columbus, Franklin "
Scheibell, William O	E.	M	Mont Clair, N. J.
Sharp, Charles C	C.	E	Sugar Grove, Fairfield "
Sigerfoos, Charles P	B.	Sc	Arcanum, Darke "
NThompson, Howard	B.	Ph	Columbus, Franklin "

FRESHMAN CLASS.

Albright, Edward R.	C. E.	Massillon,	Stark county.
Arnold, Charles N.	B. Ph.	Milan,	Erie "
Atkins, Charles G.	M. E.	Tiffiin,	Seneca "
Bancroft, Fanny E.	B. A.	Columbus,	Franklin "
Basterdes, Ada M.	B. Ph.	"	"
Bauer, Charles L.	M. E.	Springfield,	Clarke "
Bishop, Hudson D.	B. Sc.	Medina,	Medina "
Braun, Walter	C. E.	Columbus,	Franklin "
Bricker, Lorin H.	B. Sc.	Rich Hill,	Knox "
Brown, Alice L.	B. A.	Columbus,	Franklin "
Brown, George W.	M. E.	Cincinnati,	Hamilton county.
Callinan, William H.	C. E.	Columbus,	Franklin "
Cathcart, Josephine M.	B. Sc.	"	"
Chamberlain, Herbert W.	B. Sc.	"	"
Clark, Emily L.	B. A.	"	"
Cole, George N.	M. E.	"	"
Craig, Moses	B. Sc.	Rochester,	N. Y. "
Cross, Edwin L.	C. E.	Racine,	Meigs "
Doty, Harriet M.	B. Ph.	Columbus,	Franklin "
Drennan, Jefferson N.	C. E.	Loydsville,	Belmont "
Ewing, Charles E.	B. A.	W. Baltimore,	Montgomery "
Feicht, Russell S.	M. E.	Dayton,	Montgomery "
Fisher, Julius H. R. P.	B. Ag.	Loveland,	Clermont "
Fox, Gertrude	B. Sc.	Columbus,	Franklin "
Gray, Charles S.	C. E.	Ironton,	Lawrence "
Grimsley, Perry	B. A.	Columbus,	Franklin "
Johnson, Willis G.	B. Sc.	New Albany,	Franklin "
Lamb, Louis A.	E. M.	Akron,	Summit "
Laughlin, Hugh C.	B. A.	Belle Center,	Logan "
McGaw, Laura S.	B. Ph.	Columbus,	Franklin "
Mershon, Ralph D.	M. E.	Zanesville,	Muskingum "
Mitchell, Henry S.	B. Sc.	London,	Madison "
Moodie, Alice H.	B. A.	Columbus,	Franklin "
Needels, Blanche R.	B. Ph.	Groveport,	Franklin "
Needels, Mana R.	B. Ph.	"	"
Nye, George B.	C. E.	Pomeroy,	Meigs "
Oviatt, Charles C.	B. Ph.	Richfield,	Summit "
Oviatt, Emma J.	B. Ph.	"	"
Pocock, Carrie A.	B. A.	Columbus,	Franklin "
Rannells, David A.	B. Sc.	McArthur,	Vinton "
Richardson, James P.	M. E.	Clarksville,	Clinton "
Ritchey, Joseph C.	C. E.	Lafferty,	Belmont "
Scott, Bertha	B. Ph.	Columbus,	Franklin "
Scott, Harry P.	B. Ph.	Newark,	Licking "
Skinner, Charles E.	M. E.	Redfield,	Perry "
Spence, George L.	B. Ph.	Martin's Ferry,	Belmont "
Smith, Carl C.	B. Ph.	Chester Hill,	Morgan "
Smith, Charles G.	C. E.	Columbus,	Franklin "
Talbot, Nellie	B. A.	"	"
Thompson, James E.	B. Ag.	New Carlisle,	Clarke "
Weaver, Mary L.	B. Ph.	Columbus,	Franklin "
Welch, Clark J.	C. E.	Sandy Creek,	N. Y. "
Westfall, Lafayette	B. Ph.	Covington,	Miami "
Wikoff, Charles A.	B. Sc.	Columbus,	Franklin "
Williams, John H.	B. Ph.	Granville,	Licking "
Winter, Charles A.	B. Sc.	Portsmouth,	Scioto "
Yeazell, Harry A.	B. A.	Springfield,	Clarke "
Youmans, Jessie B.	B. Ph.	Columbus,	Franklin "
Youmans, Thomas G.	B. Sc.	"	"
Young, Richard B.	B. A.	"	"

SPECIAL STUDENTS.

Addison, Lewis G	Zanesville, Muskingum	county.
Campbell, Marius R	Cleveland, Cuyahoga	"
Fergus, John F	West Charleston, Miami	"
Fowler, Charles E	Chillicothe, Ross	"
Maxfield, Harvey E	Mansfield, Richland	"
Patchell, Owen W	Stone Lick, Clermont	"

SECOND PREPARATORY CLASS.

Angier, Edward H	Columbus, Franklin	county.
Archer, Charles K	" "	"
Baker, Cornelius B	Brookville, Montgomery	"
Bargar, Gilbert M	Columbus, Franklin	"
Baumgartner, Clark	Grove City, "	"
Beach, Robert K	Kelloggsville, Ashtabula	"
Beck, Herman G	Columbus, Franklin	"
Blunt, Horace H	Xenia, Greene	"
Bownocker, Louis	Amanda, Fairfield	"
Boyd, James G	Plain City, Madison	"
Boyd, Robert C	" "	"
Brashears, Carrie P	Columbus, Franklin	"
Bryant, Harry C	Dresden, Muskingum	"
Cockins, Maude M	Columbus, Franklin	"
Cope, Frank A	" "	"
Doney, Carl G	" "	"
Dudley, Stowell B	Henrietta, Lorain	"
Egbert, Knott C	Tiffin, Seneca	"
Evans, Jennie A	Columbus, Franklin	"
Farmer, Maude G	" "	"
Gale, Frank H	" "	"
Gleason, Willard	Van Wert, Van Wert	"
Goddard, Loring H	Dunham, Washington	"
Gray, John W	Ironton, Lawrence	"
Griswold, Mary C	Worthington, Franklin	"
Haines, William H	Cambridge, Guernsey	"
Haner, Jacob L	Plain City, Madison	"
Hubbard, Ralph N	Columbus, Franklin	"
John, George W	Dayton, Montgomery	"
Jones, Aaron W	Columbus, Franklin	"
Kershaw, Francis S	" "	"
Kiesewetter, Louis F	" "	"
Kocher,* Elmer E	Lockbourne, "	"
Mellott, James F	Bellaire, Belmont	"
Merritt, Charles J	Selma, Clarke	"
Mock, George H	Columbus, Franklin	"
Morrey, Charles B	Chester Hill, Morgan	"
Mounts, James L	Morrow, Warren	"
Mulligan, Anna B	Columbus, Franklin	"
Norris, Jewett L	" "	"
Norris, Walter B	" "	"
Pocock, Madeline W	" "	"
Pomerine, Frank E	Coshocton, Coshocton	"
Potter, Joseph D	Columbus, Franklin	"
Rees, William D	" "	"
Sigerfoos, Edward	Arcanum, Darke	"
Smith, Myron A	Bartlett, Washington	"
Smith, Roscoe B	" "	"
Turner, William S	Columbus, Franklin	"
Ward, Hubert H	Zanesville, Muskingum	"
Whitacre, Horace	Morrow, Warren	"
Whitacre, Walter L	" "	"
Wood, Francis C	Columbus, Franklin	"

* Deceased.

FIRST PREPARATORY CLASS.

Abbott, Harry I ..... Columbus, Franklin county.
Brossman, William G ..... Lithopolis, Fairfield "
Buss, Albert C ..... New Bremen, Auglaize "
Case, William E ..... Elmwood, Franklin "
Clark, Alexander E ..... Columbus, " "
Cook, John S ..... " " "
Cole, Claude B ..... Holgate, Henry "
Davis, Jessie ..... Columbus, Franklin "
Doak, Ella C ..... Bloomfield, Coshocton "
Doney, DeWitt C ..... Columbus, Franklin "
Doney, Emma C ..... " " "
Drake, Gussie B ..... " " "
Evans, Ernest ..... Friendship, Scioto "
Evans, William L ..... Columbus, Franklin "
Ewry, William ..... Cedarville, Greene "
Fairbanks, Edward T ..... Plain City, Madison "
Fairbanks, Harry S ..... Columbus, Franklin "
Ferguson, Harry ..... West Lafayette, Coshocton "
Fischer, William ..... Columbus, Franklin "
German, William F ..... " " "
Glidden, William E ..... Cambridge, Guernsey "
Goodell, Ralph S ..... Columbus, Franklin "
Gregg, Thomas C ..... West Jefferson, Madison "
Grether, John D ..... Columbus, Franklin "
Gruen, Frederick G ..... " " "
House, Nellie B ..... " " "
Hower, Phil G ..... Sandusky, Erie "
Hutchinson, Eberly ..... Columbus, Franklin "
Hynes, Mark V ..... Overpeck, Butler "
Innis, Harry ..... Columbus, Franklin "
Jones, Raymond V ..... " " "
Kershaw, Samuel C ..... " " "
Kilbourne, Russell ..... " " "
Knopf, Herbert K ..... " " "
Lewis, John T ..... Ashtabula, Ashtabula "
McCarter, Edward B ..... Columbus, Franklin "
McGurer, Flavia A ..... " " "
Marsh, Harry H ..... " " "
Martin, Percy ..... " " "
Miller, Clara J ..... " " "
Miller, Mary G ..... " " "
Miller, Theron B ..... " " "
Moses, John ..... " " "
Mullay, William H ..... " " "
Nesbitt, John E ..... Arcanum, Darke "
Newton, Chauncey G ..... Columbus, Franklin "
Patton, Allan V. R ..... " " "
Peasley, Frank H ..... Flint, Delaware "
Perkins, Nellie ..... Plain City, Madison "
Peters, Earl C ..... Columbus, Franklin "
Phillips, Edward E ..... " " "
Pritchard, William H ..... New Lisbon, Columbiana "
Ray, William M ..... N.Philadelphia,Tuscarawas "
Robinson, Charles C ..... Alton, Franklin "
Robinson, Charles W ..... Columbus, Franklin "
Robinson, Ekka M ..... " " "
Roy, David T ..... Glen Roy, Jackson "
Schueller, Erwin W ..... Columbus, Franklin "
Shaul, John M ..... Cable, Champaign "
Slyh, Almeda F ..... Columbus, Franklin "
Smith, Henry E ..... Loveland, Warren "
Steckel, Archibald ..... Tiffin, Seneca "
Stewart, Frank T ..... Columbus, Franklin "
Stinebaugh, Isaac L ..... Rockaway, Seneca "

Stover, Norman W	Orangeville, Trumbull	county.
Tomlinson, Samuel	Cedarville, Greene	"
Wendt, William C	Columbus, Franklin	"
Williamson, Glenn S	" "	"
Wood, Willard	" "	"
Young, Ralph A	Erie, Pennsylvania.	

IRREGULAR PREPARATORY STUDENTS.

Allen, Virgil D	Columbus, Franklin	county.
Alwood, William B	" "	"
Buck, Thaddeus E	Cardington, Morrow	"
Carr, Frederick J	Hamilton, Butler	"
Gould, Joseph E	St. Simons Mills, Ga.	
Griffin, Theodore L	Columbus, Franklin	"
High, Frank C	Bucyrus, Crawford	"
Hopkins, Edmund L	Amesville, Athens	"
Kellogg, William V	Columbus, Franklin	"
Lively, Louis P	Abner, Texas.	
McColloch, George E	Bellefontaine, Logan	"
Pedlow, Edward B	Ravenna, Portage	"
Rees, Blanche	Columbus, Franklin	"
Riggs, John D	Lawrence, Kansas.	
Shannon, Walter G	Columbus, Franklin	"
Swigart, Charles H	McClure, Henry	"
Walker, Lou C	New Madison, Darke	"
Wilcox, Cora	Galena, Delaware	"

STUDENTS IN PHARMACY.

Earhart, Charles F	First year	Columbus, Franklin	county.
Hartinger, Arthur W	First "	Middleport, Meigs	"
Heath, Arthur T	Second "	Cuyahoga Falls, Summit	"
Jackson, James A	First "	Mt. Gilead, Morrow	"
Knopp, Harry E	First "	Millersburg, Holmes	"
Krieger, Charles H	Second "	Columbus, Franklin	"
Mason, George F	First "	Groveport, "	"
Oldham, John L	First "	Reynoldsburg, "	"
Osborne, Joel E	First "	Prospect, Marion	"
Peck, Frank H	First "	Columbus, Franklin	"
Weidner, George F	Second "	Cuyahoga Falls, Summit	"
Wolgamot, Samuel H	First "	Millersburg, Holmes	"

STUDENTS IN VETERINARY SCIENCE.

Daugherty, William A	Second year	Avondale, Coshocton	county.
Ellis, Charles	First "	Springboro, Warren	"
Francis, Mark	Fourth "	Paddy's Run, Butler	"
Innis, Lew W	Second "	Columbus, Franklin	"

SHORT AGRICULTURAL COURSE.

Burnham, Simeon F	First year	Milford Center, Union	county.
Burnham, Louis C	First "	Irwin, "	"
Brashear, Otto F	First "	Milnersville, Guernsey	"
Davis, Gager C	Second "	Cortland, Trumbull	"
Davis, Shelley	First "	Dublin, Franklin	"
Fox, Charles P	Second "	Springboro, Warren	"
Hathaway, Edgar R	First "	Milford Center, Union	"
Heston, Albert	First "	Springboro, Warren	"
Howard, Cone	First "	Milford Center, Union	"
Howard, Otto N	First "	" "	"
Howard, William, Jr	First "	Irwin Station, Union	"
Humphrey, Shepard S	First "	Coolville, Athens	"
Lavery, William F	First "	South Salem, Ross	"

McCoy, Charles C.	First year	Washington C. H., Fayette	year.
McMullan, James H.	First "	Woodstock, Champaign	"
Markey, Amos	First "	West Alexander, Preble	"
Markey, Orange	First "	" "	"
Peterson, Russell	Second "	Austin, Ross	"
Stillings, Charles L.	First "	Milford Center, Union	"
Stillson, Dwight M.	First "	Piketon, Pike	"
Temple, George C.	Second "	Kent, Portage	"
Thompson, Ansley N.	First "	Milnersville, Guernsey	"
White, David S.	First "	Dunham P. O., Washington	"
Wilkins, Howard L.	First "	Washington, D. C.	
Wood, Alfred J.	First "	Mt. Gilead, Morrow	"

SUMMARY.

Post Graduates		1
Under Graduates—		
Seniors	21	
Juniors	25	
Sophomores	35	
Freshmen	61	
Special	6	
		148
In Pharmacy	12	
In Veterinary	4	
In Short Agricultural Course	25	
		41
Preparatory—		
Second year	52	
First year	71	
Irregular	18	
		141
Total		331

COURSES OF STUDY.

There are nine courses leading to degrees. Of these three are general and six are technical. The degrees for which they are prescribed are respectively Bachelor of Arts, Bachelor of Philosophy, Bachelor of Science, Bachelor of Agriculture, Civil Engineer, Mechanical Engineer, Mining Engineer, Veterinary Surgeon, and Graduate in Pharmacy. Besides these courses there are the preparatory course and the short agricultural course, each two years in length.

The preparatory course is provided for those students who enter the university directly from the common or district schools. This course includes the ordinary studies of the better grade of high schools of the state. It is expected that the graduates of these schools can enter directly upon proper college work.

ELECTIVE COURSES.

The general courses have recently been rearranged so as to introduce a much wider range of elections. Students may now extend their courses by including studies which have hitherto been confined to other courses, or they may specialize their work by electing the same study for successive years.

PREPARATORY COURSE.

FIRST YEAR.

First Term—Algebra; English; Latin (Cæsar; Virgil begun) or German.
Second Term—Algebra; United States History; Latin (Virgil) or German.
Third Term—Botany; General History; Latin (Virgil) or German.

SECOND YEAR.

First Term—Geometry; Physical Geography; Latin (Cicero) or German.
Second Term—Geometry; Physics; Latin (Cicero) or German.
Third Term—Plane Trigonometry; Physics; Latin (Cicero) or German.

Either Latin or German, as named above, is to be chosen for a two years' course. Students looking forward to the degree of Bachelor of Arts, or to the degree of Bachelor of Philosophy, will take Latin; and candidates for other degrees will take German.

GENERAL COURSES.

FOR THE DEGREE OF BACHELOR OF ARTS.

FRESHMAN YEAR.

First Term—
Required—Latin, 5*; Greek, 5; English (*a*), Rhetoric, 2; Chemistry, 4.
Second Term—
Required—Latin, 5; Greek, 5; English (*a*), Rhetoric, 2; Chemistry, 2.
Elective, 3—Mathematics, 3; Mineralogy, 3.
Third Term—
Required—Latin, 5; Greek, 5; English (*a*), Rhetoric, 2.
Elective, 3 or 4—Mathematics, 3; Chemistry, 4.

SOPHOMORE YEAR.

First Term—
Required—Latin, 3; Greek, 3; English Literature (*b*), 2.
Elective, 8—Chemical Laboratory, 5; Physics, 3; Botany, 2; Physiology, 2; Practical Anatomy, 1; Freehand Drawing, 1.
Second Term—
The same as the first term.
Third Term—
The same as the first term.
Rhetoricals through the year.
After the year 1886-87 Physics must be preceded by the Mathematics of the freshman year.

* The figures denote the number of hours a week.

JUNIOR YEAR.

FIRST TERM—
Required—Latin, 2; Greek, 3; Psychology, 3; Constitution of the United States, 2.
Elective, 5—German, 5; French, 5; English Literature (*c*), 2; History (*a*), 3; Historical Seminary (*c*), 2; Botany, 2; Chemical Laboratory, 5; Physical Laboratory, 5; Botanical Laboratory, 5; Histological Laboratory, 5; Zoological Laboratory, 5.

SECOND TERM—
The same as the first term.

THIRD TERM—
The same as the first term, except that Metaphysics is substituted for Psychology.

Rhetoricals through the year.

SENIOR YEAR.

FIRST TERM—
Required—Ethics, 3; Political Economy, 2; Greek, 3.
Elective, 7—Greek, 2; German, 3; English (*c*), 2; History (*a*) or (*b*), 3; Historical Seminary (*c*), 2; Recent Philosophy, 2; Geology, 5; Chemical Laboratory, 5; Physical Laboratory, 5; Botanical Laboratory, 5; Histological Laboratory, 5; Zoological Laboratory, 5.

SECOND TERM—
Required—Logic, 3; Political Economy, 2; Greek, 3.
Elective, 7—The same as in the first term.

THIRD TERM—
Required—History of Philosophy, 3; Political Economy, 2; Greek, 3.
Elective, 7—The same as in the first term, except that Astronomy is substituted for Geology.

Historical Seminary must be preceded or accompanied by the course in Constitution of the United States.

All elections must be continuous through the year. No instructor is required to form a class in an elective course for fewer than four students.

FOR THE DEGREE OF BACHELOR OF PHILOSOPHY.

FRESHMAN YEAR.

FIRST TERM—
Required—Latin, 5; French, 5; English (*a*), Rhetoric, 2; Chemistry, 4.

SECOND TERM—
Required—Latin, 5; French, 5; English (*a*), Rhetoric, 2; Chemistry, 2.
Elective, 3—Mathematics, 3; Mineralogy, 3.

THIRD TERM—
Required—Latin, 5; French, 5; English (*a*), Rhetoric, 2.
Elective, 3 or 4—Mathematics, 3; Chemistry, 4.

SOPHOMORE YEAR.

FIRST TERM—
Required—Latin, 3; French, 3; English Literature (*b*), 2.
Elective, 8—Chemical Laboratory, 5; Physics, 3; Botany, 2; Physiology, 2; Practical Anatomy, 1; Freehand Drawing, 1.

SECOND TERM—
The same as the first term.

THIRD TERM—
The same as the first term.

Rhetoricals through the year.

After the year 1886-87 Physics must be preceded by the Mathematics of the freshman year.

JUNIOR YEAR.

FIRST TERM—
Required—Latin, 2; Psychology, 3; History (*a*), 3; Constitution of the United States, 2.
Elective, 5—German 5; English Literature (*c*), 2; Historical Seminary (*c*) 2; Botany, 2; Chemical Laboratory, 5; Physical Laboratory, 5; Botanical Laboratory, 5; Histological Laboratory, 5; Zoological Laboratory, 5.

SECOND TERM—
The same as the first term.

THIRD TERM—
The same as the first term, except that Metaphysics is substituted for Psychology.

Rhetoricals through the year.

SENIOR YEAR.

FIRST TERM—
Required—Ethics, 3; Political Economy, 2; History (*b*), 3.
Elective, 7—German, 3; French, 3; English (*c*), 2; Historical Seminary (*c*), 2; Recent Philosophy, 2; Geology, 5; Chemical Laboratory, 5; Physical Laboratory, 5; Botanical Laboratory, 5; Histological Laboratory, 5; Zoological Laboratory, 5.

SECOND TERM—
Required—Logic, 3; Political Economy, 2; History (*b*), 3.
Elective, 7—The same as the first term.

THIRD TERM—
Required—History of Philosophy, 3; Political Economy, 2; History (*b*), 3.
Elective, 7—The same as the first term, except that Astronomy is substituted for Geology.

The Historical Seminary must be preceded or accompanied by the course in Constitution of the United States.

All elections must be continuous through the year. No instructor is required to form a class in an elective course for fewer than four students.

FOR THE DEGREE OF BACHELOR OF SCIENCE.

FRESHMAN YEAR.

FIRST TERM—
Required—Spherical and Analytical Trigonometry, 3; French, 5*; English (*a*), Rhetoric, 2; Botany, 2; Chemistry, 4.

* Students who enter as freshmen from other schools with Latin as their preparatory language, will take German instead of French, in the freshmen and sophomore years.

SECOND TERM—
Required—Higher Algebra, 3; French, 5; English (*a*), Rhetoric, 2; Botany, 2; Chemistry, 2; Mineralogy, 3.

THIRD TERM—
Required—Analytical Geometry, 3; French, 5; English (*a*), Rhetoric, 2; Botany, 2; Chemistry, 4.

SOPHOMORE YEAR.

FIRST TERM—
Required—Physics, 3; Physiology, 2; Practical Anatomy, 1; French, 2*; Free-hand Drawing, 1.

Elective, 7—Chemical Laboratory, 5; Botanical Laboratory, 5; Calculus, 5; English Literature (*b*), 2; Constitution of the United States, 2; German, 2‡.

SECOND TERM—
The same as the first term.

THIRD TERM—
The same as the first term.

Rhetoricals through the year.

JUNIOR YEAR.

FIRST TERM—
Required—Psychology, 3; Political Economy, 2.

Elective, 10—Chemical Laboratory, 5; Physical Laboratory, 5; Botanical Laboratory, 5; Histological Laboratory, 5; Zoological Laboratory, 5; French, 5; Mathematics, 3; English Literature (*b*), 2; History, (*a*), 3.

SECOND TERM—
The same as the first term.

THIRD TERM—
The same as the first term, except that Metaphysics is substituted for Psychology.

Rhetoricals through the year.

SENIOR YEAR.

FIRST TERM—
Required—Geology, 5.

Elective, 10—Chemical Laboratory, 5; Physical Laboratory, 5; Botanical Laboratory, 5; Histological Laboratory, 5; Zoological Laboratory, 5; Ethics, 3; English Literature (*c*), 2; History (*a*) or (*b*), 3; Constitution of the United States, 2; Historical Seminary, (*c*), 2; French, 2.

SECOND TERM—
The same as the first term, except that Logic is substituted for Ethics.

THIRD TERM—
Required—Astronomy, 5.

Elective, 10—The same as in the first term, except that History of Philosophy is substituted for Ethics.

Historical Seminary must be preceded or accompanied by the course in Constitution of the United States.

All elections must be continuous through the year. No instructor is required to form a class in an elective course for fewer than four students.

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† Open to students who have had two years of German.

TECHNICAL COURSES.

FOR THE DEGREE OF CIVIL ENGINEER.

FRESHMAN YEAR.

The same as for the degree of Bachelor of Science, except that Physiology is substituted for Botany.

SOPHOMORE YEAR.

First Term—Land Surveying, 4; Projection Drawing, 3; Physics, 3; French, 2; Analytical Geometry, 5.

Second Term—Descriptive Geometry, 3; Lettering and Platting, 2; Physics, 3; French, 2; Calculus, 5.

Third Term—Railroad Surveying, 5; Physics, 3; French, 2; Calculus, 5.

Rhetoricals through the year.

JUNIOR YEAR.

First Term—Astronomy and Geodesy, 3; Topographical Work, 2; Geology, 5; Analytical Mechanics, 5.

Second Term—Astronomy and Geodsey, 2; Stereotomy, 3; Geology, 5; Economic Geology, 5.

Third Term—Astronomy and Geodesy, 3; Shades, Shadows, and Perspective, 3; Bridge Strains, 5; Strength of Materials and Hydraulics, 5.

Rhetoricals through the year.

SENIOR YEAR.

First Term—Civil Engineering, 5; Physical Laboratory, 5; Bridge Designing, Drawing, and Specifications, 3; Political Economy, 2.

Second Term—Civil Engineering, 5; Physical Laboratory, 5; Plans, Specifications, and Estimates, 3; Political Economy, 2.

Third Term—Sanitary Engineering, 5; Physical Laboratory, 5; Plans, Specifications, and Estimates, 3; Political Economy, 2.

Project work two hours a week through the year.

FOR THE DEGREE OF MECHANICAL ENGINEER.

FRESHMAN YEAR.

The same as for the degree of Bachelor of Science, except that Physiology is substituted for Botany.

SOPHOMORE YEAR.

First Term—Mechanical Laboratory, 3; Projection Drawing, 3; Physics, 3; French, 2; Analytical Geometry, 5.

Second Term—Mechanical Laboratory, 3; Descriptive Geometry, 3; Physics, 3; French, 2; Calculus, 5.

Third Term—Mechanical Laboratory, 3; Shades, Shadows, and Perspective, 3; Physics, 3; French, 2; Calculus, 5.

Rhetoricals through the year.

JUNIOR YEAR.

First Term—Mechanism, 2; Astronomy, 3; Geology, 5; Analytical Mechanics, 5.

Second Term—Mechanism, 5; Geology, 5; Technical Drawing, 5.

Third Term—Designing and Drawing, 5; Astronomy, 3; Mechanism, 2; Strength of Materials and Hydraulics, 5.

Rhetoricals through the year.

SENIOR YEAR.

First Term—Thermo-Dynamics and Pneumatics, 5; Physical Laboratory, 5; Metallurgy, 5.

Second Term—Prime Movers, 5; Physical Laboratory, 5; Metallurgy, 5.

Third Term—Mill-work, 5; Physical Laboratory, 5; Technical Drawing, 5.

Projet work two hours a week through the year.

FOR THE DEGREE OF MINING ENGINEER.

FRESHMAN YEAR.

The same as for the degree of Bachelor of Science, except that Physiology is substituted for Botany.

SOPHOMORE YEAR.

First Term—Projection Drawing, 3; Physics, 3; Analytical Geometry, 5; Analytical Chemistry, 5.

Second Term—Descriptive Geometry, 3; Physics, 3; Calculus, 5; Analytical Chemistry, 5.

Third Term—Shades, Shadows, and Perspective, 3; Physics, 3; Calculus, 5; Analytical Chemistry, 5.

Rhetoricals through the year.

JUNIOR YEAR.

First Term—Geology, 5; Metallurgy, 5; Analytical Chemistry, 5.

Second Term—Geology, 5; Metallurgy, 5; Analytical Chemistry, 5.

Third Term—Determinative Mineralogy, 5; Metallurgy, 5; Analytical Chemistry, 5.

Rhetoricals through the year.

SENIOR YEAR.

First Term—Surveying, 5; Analytical Mechanics, 5; Civil Engineering, 5.

Second Term—Assaying, 5; Economic Geology, 5; Mining Engineering, 5.

Third Term—Plans and Specifications, 5; Strength of Materials and Hydraulics, 5; Coal Washing and Mechanical Treatment of ores, 5.

Projet work two hours a week through the year.

FOR THE DEGREE OF BACHELOR OF AGRICULTURE.

FRESHMAN YEAR.

First Term—Higher Algebra, 3; English, 2; Economic Botany, 5; Chemistry, 4.

Second Term—Spherical and Analytical Trigonometry, 3; English, 2; Physiological Botany, 5; Chemistry, 2; Mineralogy, 3.

Third Term—Spherical and Analytical Trigonometry, 3; English, 2; Special Botany, Grasses, etc, 5; Chemistry, 4.

SOPHOMORE YEAR.

First Term—Physics, 3; Horticulture (General Principles and Fruit Culture), 5; Analytical Chemistry, 5; Anatomy and Physiology, 3.

Second Term—Physics, 3; Horticulture (Vegetable Gardening and Seed Growing), Arboriculture and Practical Forestry, 5; Analytical Chemistry, 5; Anatomy and Physiology, 3.

Third Term—Physics, 3; Horticulture (Landscape Gardening, Practical Horticulture), 5; Analytical Chemistry, 5; Anatomy and Physiology, 3.

Rhetoricals through the year.

JUNIOR YEAR.

First Term—Veterinary Anatomy, 3; Mechanical Laboratory, 3; Geology, 5; Agricultural Chemistry, 5.

Second Term—Veterinary Anatomy, 5; Geology, 5; Economic Geology, 5.

Third Term—Veterinary Anatomy, 3; Mechanical Laboratory, 3; Agricultural Chemistry, 10.

Rhetoricals through the year.

SENIOR YEAR.

First Term—Soils, Manures, etc., 5; Domestic Animals—Varieties, etc., 5; Diseases of Animals, 5; Political Economy, 2.

Second Term—Farm Crops and Tillage, 5; Breeding and Feeding Stock, 5; Principles of Treatment, 5; Political Economy, 2.

Third Term—Farm Improvement and Management, 5; Dairying, Wool-Growing, etc., 5; Particular Diseases, 5; Political Economy, 2.

SHORT AGRICULTURAL COURSE.

[For terms of admission, see page 140.]

FIRST YEAR.

FIRST TERM—Physical Geography or Plane Geometry, 5; Agricultural Chemistry, 5; Plane Geometry, 5.

SECOND TERM—Physics, 5; Agricultural Chemistry, 5; English or Mechanical Laboratory, 5.

THIRD TERM—Botany, 5; Physics, 5; Agricultural Chemistry, 5.

SECOND YEAR.

FIRST TERM—Agriculture, 5; Veterinary Science, 5; Botany, 5; Field Measurements, 3.

SECOND TERM—Agriculture, 5; Veterinary Science, 5; Horticulture, 5; Mechanical Laboratory, 5.

THIRD TERM—Agriculture, 5; Veterinary Science, 5; Horticulture, 5; Mechanical Laboratory, 5.

COURSE IN VETERINARY SCIENCE.

[For terms of admission, see page 140.]

PREPARATORY.

FIRST TERM—Algebra, 5; Geometry, 5; Latin, German, or French, 5.

SECOND TERM—Algebra, 5; Physics, 5; Latin, German, or French, 5.

THIRD TERM—Botany, 5; Physics, 5; Latin, German, or French, 5.

FIRST YEAR.

FIRST TERM—Veterinary Anatomy, 3; Chemistry, 4; Physiology, 3; Histological Laboratory, 5.

SECOND TERM—Veterinary Anatomy, 5; Chemistry, 2; Physiology, 3; Histological Laboratory, 5.

THIRD TERM—Veterinary Anatomy, 3; Chemistry, 4; Physiology, 3; Histological Laboratory, 5.

SECOND YEAR.

FIRST TERM—General Pathology and Therapeutics, 5; Domestic Animals, Varieties, Adaptations, etc., 5; Pharmacy, 3; Clinic.

SECOND TERM—Principles of Breeding, 5; Materia Medica, 5; Pharmacy, 5; Clinic and Dissections.

THIRD TERM—Special Pathology, 5; Materia Medica, 3; Pharmacy, 5; Clinic and Dissections.

THIRD YEAR.

FIRST TERM—Special Pathology, 5; Surgical Diseases and Operations, 5; Clinical Practice, 5.

SECOND TERM—Surgical Diseases and Operations, 5; Medical Jurisprudence, 5; Clinical Practice, 5.

THIRD TERM—Veterinary Obstetrics, 5; Horse-shoeing and Inspection of Animal Products, 5; Clinical Practice, 5.

FOR THE DEGREE OF GRADUATE IN PHARMACY.

[For terms of admission, see page 140.]

FIRST YEAR.

First Term—General Chemistry, 4; Latin, 5; Physical Geography, 5.

Second Term—General Chemistry, 2; Mineralogy, 3; Latin, 5; Physics, 5.

Third Term—General Chemistry, 4; Structural Botany, 5; Physics, 5.

SECOND YEAR.

First Term—Qualitative Chemistry (laboratory work), 5; Systematic Botany, 5; Physiology, 3; Pharmacy, 2.

Second Term—Qualitative Chemistry (laboratory work), 5; Physiology, 3; Medical Botany, 2; Pharmacy, 5.

Third Term—Qualitative Chemistry (laboratory work), 5; Physiology, 3; Microscopy, 2; Pharmacy, 5.

THIRD YEAR.

First Term—Qualitative Chemistry (laboratory work), 5; Principles of Medicine, 5; Pharmacy, 5.

Second Term—Quantitative Chemistry (laboratory work), 5; Materia Medica, 5; Pharmacy, 3; Proximate Organic Analysis, 2.

Third Term—Quantitative Chemistry (laboratory work), 5; Materia Medica, 3; Toxicology, 2; Pharmacy, 5.

DEPARTMENTS AND RANGE OF INSTRUCTION.

The range of instruction in the several subjects named in the preceding schedules is more particularly defined in the following statements of the work provided in the different departments of the university :

PHYSICS.

PROFESSOR THOMAS.

For this subject ample provision has been made in the equipment of the institution. It is safe to say that, in the opportunities afforded for thorough study in it, the university already surpasses most of the institutions of the country. Its laboratory is supplied with expensive and well-selected apparatus, designed not only for illustration, but also for original research in all the leading divisions of the science. Students are directed to its use in the way of original investigation as soon as they are properly prepared to undertake such work.

The instruction in physics comprises three grades of work.

In the preparatory course, the elements or general principles of physics are taught during the second and third terms. The work consists, in the main, of a daily recitation, for which lectures by the instructor are occasionally substituted. This course is strictly elementary in its character, and is fully illustrated by experiments throughout.

During the sophomore year students in the science and technical courses have a recitation in physics on three days of each week. This course is open also to students in the arts and philosophy courses. A text-book is used, and the work consists of recitations and lectures combined. Application is here made of the student's knowledge of mathematics to the more advanced portions of physics. The formulæ representing the more important physical laws are developed, and experiment is made use of whenever necessary to the elucidation of the subject.

In addition to the above, students in civil or in mechanical engineering are required to give the equivalent of one daily recitation throughout the year to higher physics. Candidates for the degrees of bachelor of arts and bachelor of philosophy may elect the same for one year or two years, and candidates for the degree of bachelor of science, for one, two, or three years. The work in this course consists largely of laboratory practice. Lectures are given regularly to the whole class upon subjects of general interest, such as making and reducing observations and their discussion. Text-books are used and lectures given upon special subjects of study. The attempt is made to render all students familiar with methods of original research.

CHEMISTRY.

PROFESSOR NORTON.

In the freshman year of the scientific and technical courses general chemistry is taught four hours a week during the first and third terms, and two hours a week during the second. The same work is required in the courses in arts and philosophy during the first and second terms, that of the third term being elective. The subject, with its most important applications to the arts, is taught by the use of text-book and lectures, illustrated by an ever-growing collection of the materials used in the manufactures, and by a very complete suite of experiments.

After the completion of this elementary course, those who desire to devote special attention to chemistry enter the analytical laboratory, where they can carry on their work for two years or more. This laboratory work is *required* only of students in mining. Any other student may enter the laboratory if his time and his strength permi .

The course in analytical chemistry provides full instruction in all departments of the science. In connection with the ordinary work of qualitative chemistry, the student is taught the use of the spectroscope, and of the blow pipe in determinative mineralogy. He is also employed in making various compounds, and, if his time permit, studies exhaustively one or more of the elements and its important compounds.

The course in quantitative chemistry includes both the gravimetric and volumetric methods. The analyses are at first confined to those compounds whose structure is known, and afterwards extended to such bodies as the student may require in the special branch of the science to which he desires to devote himself. Opportunity is offered for the study of coals, ores, minerals, fertilizers, soils, or of the useful and the waste products in manufactures.

If the student desire, he will also be assisted in taking up in detail topics which relate to arts in which the principles of chemistry are applied. A full course of assaying is given in the mining laboratory, which is also open to the students of chemistry.

A summary of the course is given below.

Required of all Candidates for Graduation.

GENERAL CHEMISTRY.

Inorganic and organic chemistry, and the application of chemistry to the arts. Organic chemistry is required only in the science and technical courses.

Special Course.

FIRST YEAR.

First Term. Qualitative Analysis: Exercises in Blow-pipe and Flame Reactions, Reactions in the dry way, Reactions of Single Bases and Acids.

Second Term. Qualitative Analyses: Determination of Mixtures, Blow-pipe Mineralogy, Preparation of Compounds.

Third Term. Qualtitative Analysis, Stoichiometry, Review of General Chemistry throughout the year.

SECOND YEAR.

Quantitative Analysis: Special studies in Chemistry applied to Pharmacy, to Manufactures, and to the Arts.

Text-Books.—Norton's Chemistry, Beilstein's Manual, Galloway's Qualitative Chemistry, Will's Analytical Chemistry, Classen's Quantitative Chemistry, Fresenius's Quantitative Chemistry.

Books of Reference.—Watt's Dictionary of Chemistry, Handwœrtenbuch der Chemie, Gmelin's Hand-Book of Chemistry, Wagner's Chemical Technology, Graham-Otto's Chemie, Rose's Analytischen Chemie, Hoppe-Seyler and Gorup-Besanez's Physiologischen Chemie, Elderhorst's Determinative Mineralogy, Fresenius's Zeitschrift.

AGRICULTURAL CHEMISTRY.

Professor Weber.

The rooms in the chemical laboratory assigned to the department of agricultural chemistry have been fitted up in the most approved manner. The working laboratory for students contains twenty-four desks conveniently arranged and supplied with gas and water. Evaporating hoods for the evaporation of acids and the generation of noxious gases are placed on two sides of the laboratory, within easy reach of the students' desks. From this laboratory there is direct entrance to the lecture-room at one end and to the balance-room and general store-room at the other. The laboratory is amply supplied with the necessary apparatus for the work to be done.

Candidates for the degree of bachelor of agriculture take three full terms of instruction in this department in the junior year. Two hours of each week throughout the year are devoted to lectures and recitations on the applications of chemistry

to agriculture, and on the remaining three days of the week two hours daily are spent in advanced analytical work pertaining to soil, water, fertilizers, manures, feeding stuffs, milk, butter, cheese, etc.

Students taking the short agricultural course receive three full terms of instruction in this department in the first year. The work of the first two terms embraces the principles of chemistry, chemistry of the non-metals and organic chemistry, as well as a complete course of qualitative analysis. In the spring term the applications of chemistry to agriculture are made a special study, both in the lecture-room and in the laboratory.

ZOOLOGY AND COMPARATIVE ANATOMY.

PROFESSOR TUTTLE.

The work of the department comprises the study of animal life alike from the anatomical and the physiological aspect. The department is now equipped with the necessary collections, preparations, and apparatus for thorough and efficient study of the organization of representatives of each of the leading groups of the animal kingdom, and particularly for work in the physiological anatomy of the higher animals, in histology, and in practical and experimental physiology.

Members of the freshman class in all the technical courses (except the agricultural) receive during the first two terms of the year instruction in this department in the elements of anatomy and physiology. The same work, with an additional hour each week in practical anatomy, is required in the sophomore year of the courses in science and agriculture, and is elective in the sophomore year of the courses in arts and philosophy. It is the object of this instruction to impart to these students such general knowledge of the structure and functions of their own bodies as will serve as a guide to their maintenance in a state of health and usefulness, as well as to direct their attention to the phenomena of life as manifested in an organism, which, while it is the most complex, is at the same time the most familiar of living things. Martin's *Human Body* is used as a text-book, accompanied by lectures, and by anatomical, histological, and physiological demonstrations. The third term is devoted to a brief comparative study of the organization of the domestic animals and other closely allied forms, lectures and demonstrations forming the means of instruction.

In addition to the work above indicated, candidates for the general degrees have open to their election at the beginning of the junior and senior years, advanced work in this department. The first year of this work, done chiefly in the dissecting room and the laboratory, directed by weekly lectures and supplemented by collateral reading, is devoted mainly to the practical study of physiology with its necessary adjuncts of histology and physiological anatomy. It has for its object, to prepare the student for the intelligent study of the breeding, care, and treatment of the domestic animals, to lay the foundations for the study of medicine, both human and veterinary, and to give the general student a clear conception of the intimate structures and activities of the living body.

But one other institution in the west offers to undergraduates facilities equal to those afforded here, in this work. A few words, therefore, concerning the equipment of the department will not be out of place.

The new dissecting-room is large, convenient and well-lighted, and is amply supplied with all necessary material and appliances. The work done in this place is confined to the practical study of the anatomy of the lower animals (the human body not being dissected here); students looking to the medical profession can, however, acquire an experience in anatomical manipnlation and a knowledge of the normal appearance of organs that will prove of great future service.

The laboratory is excellently equipped for the study of histology and for practical histological work. It is abundantly provided with all necessary reagents for the hardening and preservation of the various tissues and organs of animals, and with injection apparatus, freezing and imbedding microtomes, etc., of the most recent and improved patterns. Each student is supplied with an excellent microscope (with powers ranging from sixty to four hundred diameters), and with the necessary materials and apparatus for the staining and mounting of preparations, and is required to familiarize himself with these processes by repeated practice, as well as o acquire a knowledge of the characteristics of tissues and the structure of organs

by their direct and continued study. In the course of the year each student prepares for himself a series of mounted sections of permanent value.

The appliances of the laboratory for practical and experimental work in physiology have recently been greatly increased. In addition to a full supply of the chemical apparatus and reagents necessary for the examination of food-stuffs, digestion-products, the blood, the secretions, etc., there have been provided a number of the most important pieces of apparatus used for the demonstration and study of the physical and mechanical processes of the body. Among these may be mentioned appliances for the registration of phenomena by the graphic method, such as a revolving cylinder with Foucault's regulator; a polygraph for projection; an excellent pendulum myograph with the accompanying moist-chamber, electric signal, and chronograph, recording one hundred vibrations per second; Mosso's apparatus for the study of the variations of blood-pressure in the human body; recording manometers; sphygmograph and cardiograph (recording); sets of Marey's tambours, etc. Further additions in this direction will constantly be made.

The following hand-books are required by the student during the first year's work in this laboratory:

Practical Physiology (Foster and Langley).

Essentials of Histology (Schæfer).

A Text-Book of Physiology (Foster.)

Students also have access to a collection of standard works, belonging to the department, and to the private library of the professor in charge.

The farther advanced work of this department, open to those who have completed the first year's work above described, deals with the phenomena of animal life from the morphological rather than the physiological side, and is intended chiefly to meet the wants of those who expect, as teachers or in other capacities, to devote a portion at least of their lives to work in biological science. While the work of each student will be arranged in great measure in accordance with his individual aptitude and purposes, all will receive special training in microscopical manipulation and in the more elaborate processes of histological technique, and are expected to devote a large portion of their time to histological and embryological research. Lectures will be given each year upon one of the great divisions of the vertebrata, in which the organization, development and classification of its members are discussed; upon the comparative anatomy and histology of the apparatus of one or another of the principal animal functions; or upon some question in general morphology or philosophic zoology.

GEOLOGY AND PALEONTOLOGY.

PROFESSOR ORTON.

The university is able to present unusual advantages for the study of geology. By act of the legislature it has been put in possession of all the collections made by the late state geological survey, and these collections have been supplemented by valuable aditions of fossils and minerals from various sources. The state collection embraces a very complete representation of every geological formation shown in Ohio.

In the preparatory course one term is given to physical geography. General geology is elective in the first two terms of the senior year of the course in arts and philosophy. It is required in the first two terms of the senior year of the course in science, and in the first two terms of the junior year of the courses in engineering and agriculture. Economic geology is required in the second term of the senior year of the course in mining engineering, and in the second term of the junior year of the courses in civil engineering and agriculture.

LeConte's *Elements of Geology* is made the basis of the instruction in the general course; economic geology is taught by lectures.

Students desiring to pursue geology further can elect it as one of their studies throughout the senior year In this year, particular attention will be given to the geology and paleontology of Ohio, for the illustration of which subjects the museum affords ample materials. These subjects will be taught by lectures, by practical work in the museum, and as far as possible by field practice.

Text-books and Works of Reference — LeConte's Elements of Geology, Dana's Manual of Geology, Lyell's Principles of Geology, Nicholson's Manual of Paleontology, Geological Reports of Ohio and of other states.

AGRICULTURE.

PROFESSOR TOWNSHEND.

The university recognizes its obligations, imposed in the terms of the grant on which it is founded, to the great industrial interests of agriculture. This obligation it aims to meet in various ways. It fixes its standard of admission so that students may enter its courses from the better class of common schools. It provides for thorough instruction in the branches of science on which agriculture depends. It has established a professorship of theoretical and applied agriculture. It has established a professorship of horticulture and botany. It has laid down a special course leading to the degree of bachelor of agriculture a short and practical course of two years in agriculture, and full course leading to a degree in veterinary science. Its professors devote much time and work every year attending and lecturing at farmers' institutes throughout the state.

While it is believed that the varied and complex questions with which the farmer has to deal, justify and require, for their most successful treatment, the extended and thorough courses of study necessary for the degree of bachelor of agriculture, it is still recognized that comparatively few will return from a six years' course of study to the farm again, and, therefore, all possible advantages are offered to young men from the country who enter the institution for a shorter time. The work of the department of agriculture is shaped so as to give to this class as large a measure of service as possible for whatever time they are on college ground.

There are three years of work provided for the student in the department of agriculture. In the first year, soils are made a subject of examination, their geological relations and origin are explained, their composition is shown, and how it is determined; the special adaptations of soils to particular crops and modes of culture are shown, and how to increase or restore exhausted fertility; the management of pastures and meadows; the character and value of the different grasses, clovers and other forage plants; the culture of field crops, such as corn, wheat, oats, barley, rye, potatoes, etc.; also the value and application of animal manures, marl, gypsum, wood-ashes, lime, superphosphate, guano, and city sewage.

The work named above occupies the first and second terms. During the remainder of the year the following subjects are treated: work of the farm and improvements; drainage, draining tools, and the manufacture of drain-tiles; irrigation, its value and methods; farm roads and how to make them; fences, material, construction, and cost; rural architecture, applied to the erection of farm houses, barns, stables, etc.; farm machinery.

The second year is mainly spent on the following topics: The natural history, description and adaptation of various domestic animals — horse-training, cattle feeding, dairy management, wool-growing, etc.

The work of the third year is spent on the general subject of veterinary science. The range of instruction can be learned from the topics named below: general principles, causes, symptoms, elements of disease; classification of diseases, principles of treatment, and remedial agents, particular diseases and operations. These are carefully studied, and, so far as opportunity can be obtained, diseases are treated, and operations made, under inspection of the class.

By reference to another page it will be seen that a shorter course in agriculture has been arranged for the benefit of students whose time is limited.

VETERINARY SCIENCE.

Recognizing the claims of the vast live stock interests of the state, the great damage done to them every year by imported and indigenous, contagious and infectious diseases, the continually enhancing value of domesticated animals, and the necessity of having reliable and well-educated veterinarians, on whom the breeders and stockraisers of Ohio can rely for sound advice, not only in cases of sickness among their animals, but also when epizootic, contagious, or infectious diseases are approaching, the trustees of the Ohio State University last year established a new department for the purpose of educating veterinarians, in other words, a veterinary school. Believing, however, that superficial knowledge is often worse

and more dangerous than ingnorance, particularly in medicine, a thorough and complete course was provided for, and the requirements for admission to the veterinary course proper, which, it was determined, should be three years, were made of the same grade as for the second preparatory year of the other university departments. Therefore, a student who can comply only with the requirements of admission to the first preparatory year, will have to take preparatory studies for one year before he can enter the veterinary course proper. During the three years of the latter all branches of veterinary science are taught in a most thorough manner, so that a student who passes his examinations, and graduates at the completion of a full course, will be a well-informed and competent veterinarian, and be at home not only in the common branches of veterinary science, such as veterinary anatomy, physiology, surgery, pathology, therapeutics, obstetrics, principles of horseshoeing, etc., but also in the just as important auxiliary branches, such as chemistry, botany, histology, microscopy, pharmacy, the laws of hygiene, the laws of breeding, forensic veterinary medicine, veterinary sanitary police, etc.

Tuition is free, and the advantages offered are unsurpassed and increasing from year to year. The various branches of veterinary science are divided among seven well-qualified professors, and several well-equipped laboratories are open to the veterinary students. For practical instruction a free clinic is held every day, and patients desired to be kept on the grounds for treatment find suitable accommodations in a veterinary hospital, while all the medicines prescribed are prepared by the students in the veterinary dispensary. Besides that, experiments and original investigations in regard to animal diseases, as to their causes, prevention, and treatment, are constantly going on in the veterinary department, under the auspices of the Ohio agricultural experiment station, connected with the university. The veterinary students, therefore, have an opportunity to become practically acquainted with the latest methods of investigating infectious and contagious diseases, and with the disease-producing germs in relation to, and their action upon, the animal organism. As there is no charge for tuition, the incidental fees are the same as in the other departments, viz.: five dollars a term, and from two to ten dollars a term in the laboratories to pay for the material used.

HORTICULTURE AND BOTANY.

PROFESSOR LAZENBY.

The instruction in botany begins with the first year of the preparatory course, one term of which is devoted to structural and systematic botany. Further instruction is given in each of the following subjects: economic botany, vegetable physiology, vegetable histology, gramineæ, compositæ, and other special groups; ferns and fungi. Their arrangement, as regards the collegiate terms and years, is seen in the tabulated statement of the different courses of study.

The instruction is given by lectures in connection with laboratory practice, supplemented by field-work or class excursions.

The practical bearings of the science are made prominent in all the instruction given. In fungi, special study is made of those forms producing rust, mildew, blight, etc., which prove so destsuctive to cultivated plants.

In economic botany, besides a study of the special characteristics, geographical distribution, and distinctive properties of all the prominent natural orders, the history, uses, and importance of the different economic species, included in their orders, are fully considered.

The study of horticulture comprises lectures and recitations in the class-room, supplemented by observation and practice in the gardens and orchards. It is treated as an art based on science. The instruction continues throughout the year. The first term is devoted to a study of the general principles of horticulture and fruit culture. Under the first general subject the following are among the topics considered: horticulture, as a profession, its relation to science: location for horticultural work; implements, fertilizers, draining and irrigation, weeds and insects, management of help, marketing, etc.

The course in fruit culture embraces a study of the origin, history, methods of propagation, pruning and training, harvesting and marketing, insect enemies, diseases and varieties of both the small and large fruits.

In arboriculture and forestry, special attention is given to the influence of forests upon climate, the value of trees for timber and ornament, the best methods of culture, and a history of different varieties.

The instruction in vegetable culture includes kitchen and market gardening and seed-growing. Among the subjects considered are: location of the garden, laying out ground, draining, special preparation of soil, irrigation, management of composts, commercial fertilizers, implements, selection of seed, construction and management of green-houses, hot-beds, cold-frames; special garden crops, history, cultivation and varieties of each; growing seed for home use and for market; the family kitchen garden, etc. In connection with the lectures, experiments, such as testing the vitalty and germinating power of different seeds, are conducted in the laboratory.

The third term is devoted to practical floriculture and landscape gardening. The general subject is divided into the following topics: window gardening, general management of house-plants, hanging-baskets, climbing vines, flowering bulbs, ferneries, Wardian cases, etc.; out-door flower-gardening, commercial flower-gardening, lawns, walks and drives, ornamental shrubs and trees. A well-stocked green-house, flower-beds in the borders, and a considerable collection of ornamental shrubs and trees on the college grounds afford valuable means of illustration in the study of the above subjects.

MATHEMATICS AND ASTRONOMY.

PROFESSOR COMSTOCK.

The instruction given in this department commences in the preparatory course with elementary algebra, which extends through the fall and winter terms of the first year, and is followed in the second year by plane and solid geometry and plane trigonometry. The work of these two years comprises all of Wentworth's Elements of Algebra except the first five chapters, with which the student is presumed to be acquainted before entering the department; all of Wentworth's Plane and Solid Geometry and the simpler parts of Chauvenet's Plane Trigonometry, omitting most of the analytical work. In the geometry prominence is given to the solution of original problems. This work is required of all candidates for admission to the regular college classes.

The collegiate work in mathematics begins in the first term of the freshman year with analytical and spherical trigonometry (Chauvenet) followed by higher algebra (Olney) in the second, and elementary analytic geometry (Bowser) in the third term. This work is required of students in the science course and in the technical courses, and the second and third term's work are open as an elective to students in the arts and philosophy courses.

The work in mathematics in the sophomore year, required of engineering students and elective to science students, consists in the differential and integral calculus with some further work in analytic geometry. Throughout this study and also in the freshman year where practicable, attention is paid to the applications which these several branches of mathematics find in problems of physical science and engineering.

In the fall term of the junior year students in civil and mechanical engineering take up the study of spherical astronomy, including the theory of the principal astronomical instruments and the elements of the method of least squares, using in the latter subject Merriman's text-book of least squares. The instruction in astronomy is mainly by lectures. The work of this term is supplemented in the spring term by a course of practical instruction in the use of the sextant and theodolite for the determination of time, latitude, and azimuth, each student being here required to make and discuss his own observations with the application of the method of least squares wherever practicable. This study is open as an elective to science students who have obtained credit for the mathematics of the sophomore year. Such students electing this subject will, during the winter term, pursue a course of study in pure mathematics, the subject for the present year being the Newtonian Potential Function (Pierce). There may be substituted for this hereafter, in accordance with the desire of students pursuing this elective, either quaternions, determinants, or advanced work in the calculus. In the winter term of the junior year instruction in geodesy is given to students of civil engineering,

special prominence being assigned to the work and methods of the U. S. coast and geodetic survey.

The study of descriptive astronomy is taken up in the spring term of the senior year by candidates for the degree of bachelor of science, and by such candidates for the degree of bachelor of arts or bachelor of philosophy as have elected geology in the first two terms of this year. The work of the term is based upon the study of Newcomb and Holden's Astronomy, Briefer Course, supplemented by occasional lectures upon the history of astronomy, and upon its still unsettled problems. An equatorially mounted telescope by Alvan Clark & Son, of sufficient size to show plainly the more striking features of the planets and nebulæ adds to the interest and profit of this study.

CIVIL ENGINEERING.

ASSISTANT PROFESSOR BROWN.

This course is intended so to instruct the student in the true principles and sound theories of engineering that he may enter understandingly on the practice of his profession. Theory and practice are combined as far as possible. The practice follows closely the actual field and office work of engineering parties; and the endeavor is made to qualify the student for any position on such parties.

The instruction is given by means of lectures, recitations, drafting, field-work, and visits to engineering structures in the vicinity. The department has a full outfit of surveyor's and engineer's instruments, such as compass, transits, level, plane-table, solar compass, chains, steel tapes, rods, etc. The student is trained in the use of these instruments until he becomes familiar with every part and with the work that can be done with each. The department has also a number of models, photographs, drawings and blue-prints for use in giving instruction in bridge works, stereotomy, and construction of various works. This collection is being increased all the while. The department has a good "dark room" and all students are practiced in making blue prints.

Text-Books and Books of Reference: Gillespie's Land Surveying; Johnson's Surveying; Hodgman & Bellows' Land Surveying; Searles' Field Engineering; Heuck's Field Book; Warren's Descriptive Geometry, etc.; Warren's Stereotomy; Mahan's Stereotomy; DuBois's Strains and Framed Structures; the works of Stoney, Burr, Green, Waddell, Boller, and others, for bridge work; Mahan's Civil Engineering; Rankine's Civil Engineering; Trautwine's Civil Engineer's Pocket Book; Haupt's Engineering Specifications; Latham's Sanitary Engineering; the proceedings of various engineering societies, and various engineering periodicals.

MECHANICAL ENGINEERING.

PROFESSOR ROBINSON.

This course is intended for those who desire to prepare themselves either for the profession of mechanical engineering, for superintending the construction of machinery, or for managing machinery in manufacturing establishments. In it instruction in principles is combined with practice. The former is mostly given by lectures, while the latter is confined to the mechanical laboratory.

The course includes the following special studies, all of which must be passed before taking the degree:

MECHANISM AND DRAWING—ONE YEAR.

Principles of Mechanism.
Machine Designing and Drawing.
Machine Drawing.

PRIME MOVERS AND MACHINERY—ONE YEAR.

Thermodynamics and Transmission of Fluids.
Prime Movers.
Machinery and Mill-work.

Besides the above there will be required for graduation:

Three terms of elementary Laboratory Practice.
Two terms of advanced Laboratory Practice.
One term of Machine Construction and Laboratory.
One term of Strength of Materials and Hydraulics.

EXPLANATION OF THE COURSE.

In the principles of mechanism are studied the parts of machinery by pairs; or, elementary combinations of mechanism. In this the form and arrangement of the parts necessary for securing the desired modification of motion is sought.

In machine-designing the student takes up some problem in the shape of a particular machine for a special purpose. The forms, dimensions and arrangements of the parts are decided upon, and then a drawing is carefully made of the whole. Detail drawings to regulation size are then made, and finished in shade lines, as is done in the best shops. The quality of these drawings is sufficient for the requirements of photo-engravings for illustrations upon circulars.

In thermodynamics are studied the principles which form the groundwork of all heat engines.

In prime movers are studied all kinds of heat engines, such as steam engines, hot-air engines, etc., and also wind-wheels and water-wheels.

Mill-work and machinery takes up valve-gears, fly-wheels, governors, efficiency of parts of machines, strength of parts, etc.

The mechanical laboratory is intended for acquainting the student with the materials used in machine construction, and with the forms customary in machinery; to impart a degree of skill in the use of tools, and a knowledge of the operations and practices of shops. The student uses most of the ordinary tools of the machine shop, such as the vise, hand-lathe, drilling-machine, engine-lathe, milling and shaping-machine and planer; also, the forge and anvil, the iron cupola and brass furnace and pattern-makers' tools.

The first term's work consists of the actual use of tools in executing a set of forms chosen with a view to supplying the greatest possible amount of practical instruction for the time. This is combined with weekly lectures on tools and their use.

The second term carries the above practice to the fitting together of parts. This is combined with weekly exercises in designing and drawing of machine elements, such as cranks, bearing-boxes, stud-ends, etc.

The third term is fully occupied in fitting parts carefully together, as in the joints of machinery, and in finishing the surfaces by scraping, polishing, burnishing, etc. This is in combination with a weekly exercise in the invention of simple machines for specific operations, such as bending wire staples, cutting wooden combs, etc.

The fourth term of mechanical laboratory practice is constructive. It is taken in connection with the principles of mechanism. In the latter, problems in mechanism are worked out, forms and dimensions assigned to the parts, and then these are executed in the laboratory, resulting in models of mechanical movements for the cabinet.

Projets will be assigned to the student, from time to time, on topics connected with his studies, requiring him to take indicator cards, test the efficiency of boilers, visiting manufacturing establishments, etc., and report. Such reports are neatly made out on the regulation papers of the department. These are taken, in part, for the examinations, and retained for the cabinet.

Text-Books and Works of Reference—Rankine's Steam Engine, and Machinery and Mill-work; Weisbach's Mechanics; Willis's Principles of Mechanism; Belanger's Cinematique; Zenner's Traite de la Chaleur; Neville's Hydraulics; Clausius and McCullough on Heat; Seller's Manual of Machine Tools; Shelley's Workshop; Unwin's Elements of Machine Design; Nicholson on Files and Filing.

MINING AND METALLURGY.

PROFESSOR LORD.

The course in mining engineering secures to the student careful instruction, with ample allowance of time, in three fundamental branches of the art—mining, preparation of the ore, and metallurgical treatment. These courses will comprise lectures, the study of text-books, preparation of maps, drawings, and sections, and visits to existing works, with careful reports upon them and practice in estimates and designs.

For assaying there is a full equipment of furnaces and ores for the dry assay, and the wet methods are taught in the chemical laboratory.

An ample collection of minerals is provided, comprising all species with which the mining engineer should be familiar, and to this the students have constant and familiar access.

Crystallography is taught by the aid of a complete collection of large wood models, made especially for the department and containing every common form.

Text-Books and Books of Reference.—Dana's Mineralogy, Egleston's Crystallographic Tables, Callon's Mining, Andre's Mining and Mining Machinery, Phillips's Metallurgy, Egleston's Metallurgical Tables, Rittenger's Aufbereitung, Gætschmann's Aufbereitung, Bodemann & Kerl's Assaying, Mitchell's Assaying, Von Cotta's Ore Deposits.

HISTORY, POLITICAL SCIENCE, AND ENGLISH.

PROFESSOR KNIGHT.

HISTORY AND POLITICAL SCIENCE.

The courses offered in history are open to all students in the arts, philosophy and science courses in the junior and senior years. The work may be briefly described, as follows:

1. History (*a*), three hours a week for one year, is a comprehensive study of Continental European history to the period of the French Revolution, with special attention to the rise and fall of political, social, religious, and governmental ideas and institutions.

2. History (*b*), three hours a week for one year, comprises two courses, each for a half year. The first is a study of the French Revolution, its causes, and its effects on France and Europe, and the development of constitutional government on the continent during the present century. The second half year is devoted to the history of the English Constitution. The work in both these courses is done partly by the use of text-books and partly by lectures, accompanied by extended reading by the class, the results of which are embodied in essays and theses presented from time to time by the students.

3. History (*c*) is a historical and economic seminary course open to advanced students for the exhaustive study of special topics in the political and industrial history of the United States. In this course students are sent to original sources of information, and are expected to find and work out their own results under the guidance of the professor. This course must be preceded or accompanied by that in

4. The Constitution of the United States. This course is required in the junior year of the arts and philosophy courses, and is open to science students in the sophomore or senior years. It embraces a series of lectures on the constitutional history of the United States, and the study, by text-book, of elementary constitutional law.

5. In political economy, required for two hours a week through the senior year, the primary aim is to familiarize the student with the principles of the science, and to discuss questions of paramount importance to industrial society as it exists to-day.

ENGLISH.

The work in English language and literature extends through three years. The aim is to give the student a correct understanding and use of language, and to familiarize him with the history and nature of the literature.

1. English (*a*), two hours a week, is required of all students in the freshman year. It includes a complete study of the principles of rhetoric, and their application by the student in oral and written discourse.

2. English (*b*) comprises work for one term in the study of Anglo-Saxon, and for two terms in the history and development of English literature.

3. English (*c*) gives the student during two terms an opportunity for the direct study and critical analysis of many of the masterpieces of our literature, while the third term is devoted to a study of the growth and genesis of the English language.

FRENCH.

MISS WILLIAMS.

A two years' course in this language is provided for. In the beginning the student attends mainly to grammatical doctrine and literal versions, and afterwards to the literary contents and characteristics of what he reads. Lectures on French literature run through the second year of the course.

COURSE.

Freshman Year.

First Term—Borel's Grammaire Francaise.
Second Term—Grammar continued: Masson's French Classics.
Third Term—French Classics continued.

Sophomore Year.

For course in philosophy—

First Term—Moliere, Corneille, Racine (2); composition (1).
Second Term—Modern French Prose; Literature.
Third Term—The Classics and Literature continued.

For course in science—

First Term—Scientific French.
Second Term—Scientific French.
Third Term—Modern French Prose.

LATIN.

PROFESSOR DERBY.

Candidates for admission to the preparatory courses in arts and philosophy will be examined in the first book of Cæsar, *De Bello Gallico* and the elements of Latin grammar. Equivalents will be accepted for Cæsar. Students preparing to enter these courses are advised to master *thoroughly* Jones's, Harkness's, or Leighton's Latin Lessons. Much attention should be given to translation from English to Latin, and to the acquisition of an exact and ready knowledge of the inflections. The Roman method of pronunciation is preferred.

Latin is a required study for all regular students in the school of arts and philosophy. The course of instruction extends through the preparatory course and the first three years of the college curriculum. The exercises in this department occur daily in the preparatory and freshman years, three times a week in the sophomore year, and twice a week in the junior year.

The subjects are taught by means of text-books or lectures, and illustrated by books of reference, maps, and plans. Topics for investigation and an oral or written report of results are assigned to members of the advanced classes. By such exercises an attempt is made to familiarize the student with some of the sources of our knowledge of classical antiquity and with approved methods of studying them.

The main purpose of the earlier portion of the course is to give each student a ready command of the forms of the language, with such knowledge of its vocabulary and ordinary constructions as will enable him in the latter period of his study to pay attention chiefly to the literature, polity and life of the Roman people.

It is believed that by this method a good measure of the intellectual discipline gained in linguistic study may be secured, together with that insight into the elements of ancient civilization which is indispensable to the proper understanding of the history, philosophy, politics, and law of modern times.

Candidates from other schools will be expected to meet the following requirements in Latin for admission to the Freshman class:

1. Latin Grammar;
2. Latin Prose Composition, Allen's, Part I;
3. Cæsar's Gallic War, Books I-III;
4. Virgil's Aeneid, Books I-VI;
5. Cicero, six orations.

PREPARATORY COURSE.

First Year.

First Term—Cæsar; Grammar reviewed.
Second Term—Virgil.
Third Term—Virgil.

Second Year.

First Term—Cicero.
Second Term—Cicero.
Third Term—Virgil; Latin Composition.

COLLEGE COURSE.

Freshman Year.

First Term—Cicero, *De Amicitia;* Latin Composition.
Second Term—Livy.
Third Term—Horace, *Odes.*

Sophomore Year.

First Term—Tacitus, *Histories.*
Second Term—Terence.
Third Term—Horace, *Epistles.*

Junior Year.

First Term—Quintilian.
Second Term—Martial.
Third Term—Mediaeval Latin.

GREEK.

PROFESSOR SMITH.

The course of Greek comprises four years of college work, arranged as follows:

Freshman Year.

First Term—Goodwin's Grammar, and White's Lessons.
Second Term—Grammar and Lessons; Xenophon's *Anabasis*, Book I.
Third Term—*Anabasis*, Books II and III; Greek History.

Sophomore Year.

First Term—Xenophon's *Memorabilia*; Greek Prose Composition.
Second Term—Herodotus, Selections; Greek History.
Third Term—Homer, *Odyssey*; Greek Literature.

Junior Year.

First Term—Thucydides, Books I and II; Greek Literature.
Second Term—Plato; Apology and Crito.
Third Term—Demosthenes, *Olynthiacs*; The Attic Orators.

Senior Year.

First Term—Homer, *Iliad*; Epic Poetry.
Second Term—Sophocles, *Antigone*; Greek Antiquities.
Third Term—Pindar, *Selections*; Greek Etymology.

Instruction by means of text-books, lectures and works of reference throughout the entire course.

PHILOSOPHY.

PRESIDENT SCOTT.

The work in philosophy extends through the junior and senior years of the courses in arts, philosophy, and science, all of which is required except that in the senior year of the course in science.

Junior Year.

First Term—Psychology, 3.
Second Term—Psychology, 3.
Third Term—Metaphysics, 3.

Senior Year.

First Term—Ethics, 3.
Second Term—Logic, 3.
Third Term—History of Philosophy, 3.

During the two terms of psychological study the best authorities are consulted, and essays are written by the class. It is the constant aim to lead the student, as fast as possible, to dealing at first hand with the profound and interesting problems of mind. For this end the conversational method has been found most effective, and is much relied on in teaching this as well as the other subjects of the department, but text-books and lectures are also employed.

In the study of metaphysics, the nature, validity, and source of the fundamental conceptions of human thought are investigated, and their relations to the various departments of knowledge receive careful attention.

The term in ethics is devoted to the study of the prevailing theories of morals, and an effort is made to form a critical estimate of their truth and value. The nature of conscience, the ideas of right and obligation, their sources and their authority, and the relation of ethics, on the one hand, to the intellectual, and on the other, to the practical life, are successively taken up and considered.

Logic is studied in both its deductive and its inductive form, and copious examples are introduced. The diligent student may, even in the brief time allotted to the study, obtain a fair elementary knowledge of the subject, and thus open the way for an intelligent direction of his powers in all his intellectual pursuits.

The work in this field is completed by a term in the history of philosophy. With Schwegler as a text-book, the first names in the history of thought are studied, their relations developed, and the progress of opinion traced through its successive

stages. The present state of psychology, ethics and metaphysics is reviewed in their relations to the past, and their significance and tendencies are investigated under the guidance of history.

Recent philosophy is offered as an elective in the senior year of the courses in arts and philosophy.

MILITARY SCIENCE AND TACTICS.

LIEUTENANT BLOCKSOM.

The officer in charge of this department is a graduate of West Point, and has been detailed for this service by the general government. All students, except juniors, seniors and sophomores, and such others as can show reasonable ground for exemption, are required to take part in the drill. This exercise occupies about an hour five days in each week. The following is the roster of the officers of the battalion:

FIELD.

Cadet Captain	Howard Hagler.

STAFF.

Cadet Captain and Adjutant	W. B. Norris.
" " Quartermaster	Seth Hayes.
" Sergeant-Major	A. T. Heath.
" Quartermaster-Sergeant	J. F. Mellott.

BAND.

Leader—Cadet	W. A. Daugherty.
First Sergeant	W. L. Whitacre.

"A" COMPANY.

Cadet Captain	H. T. Stephens.
" First Lieutenant	W. G. Johnson.
" Second "	C. C. Ewing.
" First Sergeant	C. G. Smith.
" Second "	G. H. Mock.
" Third "	L. H. Bricker.
" Fourth "	L. W. Innis.
" Corporal	L. A. Lamb.
" "	J. E. McCulloch.
" "	E. H. Angier.

"D" COMPANY.

Cadet Captain	Wm. S. Crawford.
" First Lieutenant	Thos. G. Youmans.
" Second "	J. C. Ritchey.
" First Sergeant	J. E. Thompson.
" Third "	K. C. Egbert.
" Corporal	C. H. Ellis.
" "	L. F. Kiesewetter.
" "	Perry Grimsley.

"B" COMPANY.

Cadet Captain	C. Casper Oviatt.
" First Lieutenant	Theo. Griffin.
" Second "	Walter Braun.
" First Sergeant	R. B. Smith.
" Second "	M. A. Smith.
" Third "	C. Swigart.
" Corporal	F. H. Gale.
" "	W. D. Rees.

"C" COMPANY.

Cadet Captain	R. L. Carle.
" Second Lieutenant	D. A. Rannells.
" First Sergeant	H. H. Ward.
" Second "	R. Peterson.
" Third "	P. Fischer.
" Corporal	H. S. Mitchel.
" "	E. S. Kershaw.
" "	E. Sigerfoos.

THE SCHOOL OF PHARMACY.

By a recent statute of Ohio it is made compulsory upon all persons desiring to engage, either as proprietor or assistant, in the retail drug business, to appear before the state board of pharmacy and pass an examination to test their competency in compounding and dispensing the prescriptions of physicians. The violation of this law is made a misdemeanor and is punishable by a heavy fine.

The university, recognizing its obligation to respond as far as possible to every demand for advanced knowledge and training, opened a school of pharmacy at the beginning of the past year. Although the establishing of the department was not announced until shortly before the beginning of the term and no full course was offered, yet a sufficient number of students presented themselves to constitute a good working class.

The instruction in pharmacy proper has been placed in the hands of Mr. George B. Kauffman, well known as the senior member of the firm of Kauffman, Lattimer & Co, who brings to the work not only the knowledge and zeal required, but also the extensive facilities of his private laboratory. In the instruction in pharmacy the following subjects are treated during the first year: laws relating to pharmacy, the pharmacopœias, pharmaceutical processes, simple galenical pharmacy, classification of drugs, pharmacognocy, and officinal pharmacal preparations. The remaining year deals with officinal pharmacy, extemporaneous pharmacy, prescription practice, pharmacognocy, practical operative pharmacy, and dispensing. The other studies of the course find their proper place in connection with the regular classes of the university.

A course of three years is now offered. The studies prescribed include those indicated by the requirements of the state board of pharmacy and other branches which bear most directly upon the work of the pharmacist. The course and the requirements for admission are printed elsewhere.

The degree of Ph. G. (graduate in pharmacy) will be conferred on those who complete and pass satisfactory examinations on the required course of study.

DRAWING AND DESIGN.

MR. BRADFORD.

In mechanical drawing instruction is given in elementary projection drawing, and, to special students who may desire it, advanced mechanical drawing, such as architectural or other construction drawing.

In free hand drawing instruction is given in elementary work. Outline drawing from the flat copy and from models, and in shading from models and casts, water-color painting from groups of objects, oil painting from the copy, and groups in still-life, crayon portraits from copy or photograph, and modeling in clay, are also taught.

AGRICULTURAL EXPERIMENT STATION.

PROFESSOR TOWNSHEND, *Director.*

The state has established an agricultural experiment station which is now located at the university. The station is sustained by appropriations from the state.

The experiments and investigations will be carried on, both in the field and in the laboratory, and will deal with the following great agricultural interests, viz.:

(1) grain raising; (2) stock farming and dairy husbandry; (3) fruit and vegetable culture; (4) forestry.

The station is prepared to test varieties; to analyze and test fertilizers and manures; to examine seeds that are suspected of being unsound or adulterated; to identify and name weeds and other plants; to investigate and describe, when known, the habits of injurious and beneficial insects; and other work of a similar character that properly comes within its province.

STATE METEOROLOGICAL BUREAU.

PROFESSOR THOMAS, *Director.*

In 1882 the legislature established a state meteorological bureau, of which the professor of physics is the director. There is provided at the state university a full equipment of standard instruments for meteorological observations. Corresponding equipments are also provided for voluntary observers throughout the state. At the present time the bureau receives regular reports from about forty stations.

STATE FORESTRY BUREAU.

This bureau has been established by the legislature and located at the university. The board of directors has organized and begun its work. What has been done is announced in the annual report of the board.

GENERAL INFORMATION.

FOUNDATION.

The university was founded in accordance with an act of congress passed July 2, 1862. Under this act the state of Ohio received from the United States six hundred and thirty thousand acres of the public land for the purpose of establishing a college "where the leading objects shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such a manner as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

The fund arising from the sale of this land now aggregates, within a little, the sum of five hundred and thirty-eight thousand dollars, which is held in trust by the state and yields an annual income of thirty-two thousand two hundred and seventy dollars.

The university also received three hundred thousand dollars from Franklin county and twenty-eight thousand dollars from citizens of Columbus, which were expended in the purchase of a farm within the limits of the city of Columbus, in the erection of buildings, and in the equipment of the departments of instruction. The total value of endowment and property at the present time exceeds one million one hundred thousand dollars.

For several years the legislature has made annual appropriations to supply new and growing needs. The total income of the university last year was over sixty-two thousand dollars. The incomes of the agricultural experiment station and the meteorological bureau, which were also expended at the university, raised the aggregate to more than seventy thousand dollars.

The trustees and faculty have endeavored to direct the policy of the university in accordance with the excellent provisions of the act of congress on which its endowment is based. While the subjects commonly included in college studies are taught with efficiency and thoroughness, special provision has been made for extensive and practical instruction in the various branches of natural science and their applications. The leading industries of the state — agriculture, veterinary, pharmacy, mechanics, mining and engineering—have each a separate department and a special course of study provided, while the sciences that underlie these arts form special departments and are taught by extended courses in well equipped laboratories.

Location.

The university is situated within the corporate limits of the city of Columbus, two miles north of the union depot. Two lines of street railroad reach the grounds. New students and strangers wishing to visit the institution should take a white car going northward; or, if they wish to reach the dormitories, they should take a green car.

Grounds and Buildings.

The university possesses about three hundred and twenty-five acres of land, the most of which is devoted to agricultural purposes. Forty acres have been reserved for a campus, which is being improved year by year. There are ample grounds for military drill, athletic sports, lawn tennis courts, and a base ball ground.

There are four buildings devoted to the immediate work of the university. The largest of these contains the president's room, the chapel, the library, the geological museum, the art hall, lecture rooms, two laboratories, the society halls, and the office of the state meteorological bureau. Another contains the mechanical department; another, the departments of general chemistry, agricultural chemistry, and mining engineering; and the fourth the department of botany and horticulture, with green-house and the offices of the state agricultural experiment station. There are two dormitories accommodating more than eighty students, and seven residences for professors. Besides these there are numerous buildings occupied by the farm department and the agricultural experiment station.

The Library.

The library contains many valuable books, especially reference books and works in science, history and philosophy. It is in almost constant use by the students for reading and reference. The room is also supplied with leading periodicals, care being taken to select such as will afford to the student the freshest and ablest discussions on the subjects of current interest and the latest thought in the several departments of instruction.

The legislature has recently appropriated $9,000 for the library, by which this important adjunct of the university has been greatly improved. Additions have been made in science, history, literature, and philosophy, and the whole has been placed in a large and well-lighted room especially fitted up to receive it. The number of books is about seven thousand.

The state library, containing about sixty thousand volumes, is accessible to students, and constitutes a valuabe auxiliary to the university. The city library of Columbus with its sixteen thousand volumes may also be used.

The Laboratories.

Much of the work in science is performed in laboratories by the students themselves. To promote this, which is now universally recognized as the true method of teaching science, the trustees and faculty

have been at great expense and pains to provide the best possible facilities. The number of laboratories now in operation is seven—the physical, the chemical, the physiological, the mechanical, the mining and assay, the botanical, and that for agricultural chemistry. These are supplied with extensive and well selected apparatus, and afford the means not only for illustration and practice, but also for original investigation. An appropriation of twenty-five hundred dollars has been recently expended to procure additional apparatus for the mechanical laboratory; and the same amount for equipping the laboratory of agricultural chemistry.

Religious Services.

Daily prayers are held in the university lecture-room, at which the attendance of all students is required, except when excused for special reasons. The services are usually conducted by the president, but sometimes by other members of the faculty and by visiting clergymen of various denominations.

Literary Societies.

The Alcyone and Horton literary societies have commodious and well-furnished halls in the main building. The Browning literary society, which is composed of young ladies, also has a hall, which has been neatly and tastefully fitted up. All these societies meet weekly. The membership is large, and the work is vigorous and effective, affording to the student a very desirable training in composition, public speaking and parliamentary order.

Young Men's Christian Association.

The university branch of this association has rented and furnished a pleasant room. Meetings are held on Saturday evening for devotional exercises and Bible study. On Sunday afternoon the association is usually addressed by a member of the faculty, or a resident minister. The organization has steadily grown in membership and in influence, and gives promise of great usefulness.

Terms and Vacations.

The first term of each college year, shall begin on the Wednesday following the tenth day of September, and shall close on the Wednesday preceding Christmas. The second term shall begin on the Wednesday following the first day of January, and shall close on the Wednesday following the twenty-sixth day of March. The third term shall begin on the Wednesday following the second day of April, and shall close on commencement day, which shall be the Wednesday following the eighteenth day of June.

Registration Day.

All students are required to register and procure their class cards on the first Wednesday of each term; and no student, after having once been admitted to the university, will be allowed to register after the close

of registration day, except on the presentation in writing to the secretary of his committee of a satisfactory reason for his delinquency.

College work will begin in accordance with the program on the first Thursday of each term.

ADMISSION.

The university is open to students of both sexes. Students entering from other colleges are required to bring certificates of honorable dismission.

I. To the Preparatory Department.

Entrance examinations for 1887 will be held at the university June 20 and 21 and September 12 and 13—those in geography and grammar on the first day, and those in other branches on the second.

For admission to the preparatory department of the university, candidates must pass a satisfactory examination in the branches taught in the common schools, viz.: orthography, writing, grammar, geography, arithmetic, and algebra through simple equations. For admission to the preparatory courses in arts and philosophy, one year of Latin is required.

Graduates of the high schools of the state are admitted to the preparatory department without examination. Applicants having a teacher's certificate of twelve months are also admitted without examination, except in algebra, when this study is not included in the certificate, and in Latin.

II. To the College Classes.

The entrance examinations will be held on Monday and Tuesday immediately preceding commencement day, and on Monday and Tuesday immediately preceding the opening of the first term of each year.

Candidates for admission must be at least sixteen years of age, and must be provided with credentials from their last instructor or from the last institution with which they have been connected.

Candidates will be admitted to the freshman class on the completion of the work of the preparatory department, on examination in that or equivalent work, or on the presentation of diplomas from such high schools or academies as the faculty shall from time to time designate; subject, however, in the last case, to conditions in such preparatory branches as are not covered by their diplomas.

Candidates for advanced standing who do not come from some other university or college, will be examined in the studies preparatory to admission to the collegiate courses and also in such undergraduate studies as they may ask to be credited with in advance. Students who have completed at least one year's work in an approved college, and who bring explicit and official certificates describing their courses of study and scholarship, and letters of honorable dismissal, will be admitted without examination, except such as may be necessary in order to determine what credits they are to receive for work done in the college from which they have come and what courses of study they may pursue with profit in the university.

III. To Other Courses.

For admission to the short course in agriculture the requirements are the same as for admission to the preparatory department, with the exception of algebra. The entrance examinations, therefore, include orthography, writing, grammar, geography, and arithmetic. Candidates over twenty-one years of age are admitted to this course without examination.

For admission to the veterinary course the requirements are the same as those for admission to the preparatory department.

For admission to the course in pharmacy the requirements are the same as those for admission to the preparatory courses in arts and philosophy, viz.: grammar, geography, arithmetic, algebra, and Latin. At present candidates who have had two years' experience in a drug store will be admitted without examination in algebra or Latin.

For admission to either of these courses high school diplomas and teachers' certificates for a year will be accepted in lieu of examination in the subjects which they include.

IV. To Special Studies.

Students who desire to pursue special lines of work in the collegiate department of the university and do not desire to become candidates for degrees, will be admitted on the following conditions:

1. When the greater part of the special work lies in the course in arts or philosophy, the regular entrance examinations must be passed.

2. When the greater part of the special work lies in science or technical courses, the examination in the language required for admission may be omitted at the option of the appropriate committee.

3. Applicants who are not less than twenty one years of age may, after passing examination for admission to the preparatory department, be excused by the appropriate committee from such studies or examinations in the preparatory course as it may deem best; provided that, if any such student afterward becomes a candidate for a degree, he shall pass the omitted examinations at least one year before the degree is conferred. In the mechanical department the limit in age for such students shall be eighteen years.

MATRICULATION.

Each student on being admitted to any college class, shall signthe matriculation book provided for the purpose, and shall be certified by the secretary of the faculty to the secretary of the appropriate committee with a statement of the course and class to which he is admitted, and what conditions, if any, are imposed.

Each special student on being admitted to the work of the college classes, shall sign the matriculation book, and shall be certified as such to the proper secretary.

CLASSIFICATION OF STUDENTS.

The various departments of the university have been classifiedne four schools, designated as follows:

The School of Arts and Philosophy,

Including those studies which enter into the courses leading to the degrees of Bachelor of Arts and Bachelor of Philosophy.

The School of Science,

Including those studies which enter into the course leading to the degree of Bachelor of Science.

The School of Engineering,

Including those studies which enter into the courses leading to the degrees of Civil Engineer, Mechanical Engineer, and Mining Engineer.

The School of Agriculture,

Including those studies which enter into the courses leading to the degrees of Bachelor of Agriculture and Veterinary Surgeon.

Each school is under the direction of a standing committee of the faculty, having power to act in all matters pertaining to the studies of students in each school, in the transfer of students from one school to another, and in matters of minor discipline.

Every undergraduate student enters one of the above schools. In case of irregularity he is assigned to that one in which the majority of his studies are found.

All students in each school are regarded as belonging to one of two groups; first, those whose purpose it is to enter upon one of the regular courses of study, with the expectation of taking its degree; second, those who come to the university for the purpose of pursuing some special study or line of work, and who do not expect to take a degree.

The courses of study leading to the various degrees having been arranged by the faculty in the order which is believed to be the best adapted to the general requirements of students, *all who do not belong to the second of the groups indicated*, will be required to enter upon the regular work of the college classes to which they belong, or in case of present irregularity to remove such irregularity as speedily as practicable in the manner prescribed by the committee of the school in which they are classed, and no such student will be allowed to take more or other than his regular studies without presenting a request with reason therefor to his committee and receiving its consent. Such consent may be revoked at any time when it may seem advisable to do so.

Students belonging to the second group, viz.: those coming to the university for a limited time with the definite purpose of pursuing some special line of work, will in each case enter the school in which their proposed work is chiefly included, and shall lay before the committee a statement of the end in view, the studies proposed for the accomplishment of that end, and the probable period of residence.

While it will be the purpose of each committee, in accordance with the well-established policy of the university, to allow to such students full freedom in the selection of the branches which they desire to pursue, subject only to the necessary limitations that they are prepared to

take up the branches they select and that such branches are in accordance with the end proposed, it is also their intention to hold these students as regularly to the performance of their accepted schemes of work as they do the members of the first group to their prescribed courses of study; and they will refuse admission to this group to all of whose definiteness of purpose or fitness to undertake the work proposed they fail to receive satisfactory evidence.

EXAMINATIONS.

1. A written examination shall be held for each preparatory class at the close of each term.

2. A written examination shall be held for each collegiate class at the close of each term. When, however, two or more written examinations have been held during the term, the professor in charge of the department may, at his discretion, give credit for the work of the term to such students as have passed the mid-term examinations and given other satisfactory evidence of their proficiency, without holding them for the final written examination. Such mid-term examinations shall occupy only the regular recitation hour.

3. Credit for the work of the term in any laboratory may be given without a written examination at the discretion of the professor in charge.

4. The standing of the students shall be reported as "passed with merit," "passed," "conditioned," or "failed."

5. Any student conditioned at the close of a study shall be held for an examination in that study during the following term at such time as may be designated by the professor in charge of the department in which the condition was incurred. When a condition is incurred during the progress of a study, the professor in charge may, at his option, require an examination during the following term (in which case proper notice must be given at the time the condition is announced), or may allow the condition to stand until the close of the following term, when, if the student passes in the work of the current term, the condition shall be removed; if he does not pass, the work of both terms shall be counted as failures.

6. The regular work of each laboratory is regarded as the equivalent of five class-room exercises per week. Two consecutive hours daily in the department is also so regarded.

7. No special or irregular student is allowed to take less than fifteen or more than eighteen hours per week of class-room work, or its equivalent, and no student conditioned in any study will be permitted to take more than the regular work of his class the following term.

8. At the close of each term students must pass in examinations in studies representing at least ten hours per week, in order to retain their connection with the university.

9. Students conditioned in studies representing ten hours per week, must pass satisfactory examinations in at least one-half of those studies before regaining their standing in college.

10. Students failing in examinations representing ten hours per week, forfeit their place in college thereby.

11. Students who fail in the term examinations, or in an examination for conditions, are required to take the study or studies in which they fail, on their occurrence in the following year, except when excused by the faculty.

12. Students failing on a re-examination for a condition, are dropped from that class, if a continuous one.

13. Absence from any examination is construed as a failure therein.

14. Students in any three-term class who fail to attain the grade "passed" at the end of more than one term, shall be required to repeat the work of the whole year, unless excused by the professor in charge; and the students in any two term class who are reported as "failed" at the end of the second term, may be required by the professor in charge to repeat both terms' work.

Absences and Demerits.

1. Four demerit marks shall be recorded against a student for every unexcused absence from a class or from drill; two for every unexcused failure in recitation or in drill; and one for every unexcused tardiness; and other offenses shall be rated as the faculty shall from time to time determine.

2. When any student has received ten demerit marks he shall be admonished by the president.

3. When any student shall have received twenty demerit marks notice thereof shall be sent to his parent or guardian.

4. When any student has received forty demerit marks his connection with the university is thereby forfeited.

5. No account of demerits shall be continued longer than the close of the college year.

Expenses.

I. College Dues.

There is no charge for tuition in any department of the university; but a charge of $5.00 a term, or $15.00 a year, is made against all students, under the head of incidental expenses, and students in the laboratories are required to pay fees to cover, in part, the cost of materials consumed, and the deterioration of the expensive instruments employed. The fee in the chemical laboratory is $10.00 per term; in the laboratory of agricultural chemistry, $8.00 per term; in the physical and mining laboratories, $7.00 per term; in the mechanical and physiological laboratories, $5.00 per term, in the botanical laboratory, $2.00 per term; in the laboratory of economic botany, $1.00 per term, and in preparatory botany, 50 cents per term. These dues are required at the opening of each term.

The payment of term bills is required of all students as a condition of admission to classes.

II. Board.

There are two dormitories on the grounds, provided for the use of students. The smaller of these affords unfurnished rooms, *rent free*, to such students as desire to board themselves, and thus to reduce their expenses to a minimum. Twenty students can be accommodated in this building, two students being assigned to each room. The expense of living in this way falls below $2.00 per week.

The larger dormitory can accommodate more than sixty students. It is, for the present, turned over to the university club, *rent free*. Board, furnished room, fuel, light and washing are, at present prices, supplied for about $3.00 per week. New students will not, however, be admitted to the club without special recommendation.

Boarding clubs are also formed in the neighborhood of the university. Within the last year five such clubs have been organized with very satisfactory results. Furnished rooms were rented at seventy-five cents to one dollar per week for each student, and the cost of board was about two dollars per week.

Board, with furnished rooms, can be obtained in private families, within convenient distances of the university, at rates varying from $4.00 to $5.00 per week. The ruling rate may be taken as $4.50 per week for young men and $5.00 for young ladies.

A uniform has been adopted, with which all members of the military organization are required to provide themselves. The cost of the uniform is about $23.00.

The expense of a college year will include the following items, viz.:

College dues	$15 00		$15 00
Board, rooms, etc., at $3.00 per week	114 00	at $4.50	171 00
Total	$129 00		$186 00

This estimate provides for light and fuel, but does not include textbooks or charges for laboratory supplies. Students boarding themselves can reduce the lowest of these estimates at least $30.00, making a total of less than $100.

No buildings are provided on the university grounds for the residence of young ladies. Boarding places in respectable families are secured for young ladies who enter the institution, but the faculty is not so situated that it can exercise supervision over their conduct outside of college hours. Parents who place their daughters in the university should be well satisfied as to their discretion, or else should leave them under the care and control of the family with which they board.

OHIO STATE UNIVERSITY ALUMNI.

Officers.

President—C. C. Howard	Columbus,	Ohio.
Vice-President—Mary O. Scott	"	"
Secretary—C. V. Pleukharp	"	"
Treasurer—Fred. Keller	"	"

College Committee.

Charles E. Higbee	5 years.
Harwood R. Pool	4 "
J. P. Jones	3 "
C. C. Howard	2 "
W. A. Dun	1 "

Executive Committee.

Consists of officers of association.

Class.	Name.	Degree.	Residence.	Occupation.
1878	Jno. F. McFadden	A. B	Columbus, Ohio	Attorney-at law—Justice of Peace.
	C. H. Dietrich	B. S.	Hopkinsville, Kentucky	Teacher.
	W. A. Dun	B. S.	Cincinnati, Ohio	Physician.
	Ferdinand Howald	B. S.	Fire Creek, West Virginia	Mining Engineer.
	C. C. Howard	B. S	Columbus, Ohio	Analytical Chemist.
	Arthur B. Townshend	B. S.	New York, N. Y	Physician.
1879	W. F. Noble	A. B.	Tiffin, Ohio	Attorney-at-law.
	J. S. Humphrey	B. S.	Garden City, Kansas	County Surveyor of Finney county.
	A. B. McMackin	B. S.	Newberry, S. C	Clergyman.
	M. Frank Morrison	B. S.	Denver, Colorado	Mrs. Prof. S. H. Short.
	Henry Snyder	B. S	Oxford, Ohio	Professor Physics, Miami University.
	B. S. Towne	B. S., E. M.	El Paso, Texas	Mining Engineer.
1880	E. E. Corwin	A. B.	Columbus, Ohio	Attorney-at-law.
	Arthur Cunningham	A. B.	"	Book-keeper.
	H. D. Gregory	E. M.	"	Civil Engineeer and Bridge Builder.
	J. P. Jones	A. B.	"	Attorney-at-law.
	J. H. McCormick	B. S.	Fort Wayne, Indiana	Draughtsman.
	F. Z. Smith	A. B.	"	Attorney-at-law.
	Alice M. Townshend	A. B.	Bement, Illinois	Mrs. Chas. M. Wing—stock farm.
	John C. Ward	A. B.	Painesville, Ohio	Clerk of Court.
	S. H. Short	B. S.	Denver, Colorado	Electrical Engineer, formerly Prof. Physics and V. P., University of Denver.
1881	Harwood R. Pool	B. Ph.	New York, N. Y	Attorney-at-law.
	W. K. Cherryholmes	B. S.	Millersburgh, Ohio	Physician.
	K. D. Wood	A. B.	Columbus, Ohio	Book-keeper.
	Josephine M. Bates	B. Ph	"	Mrs. Florizell Smith.
	David O'Brine	B.S., E.M.M.D	"	Assistant in Chemistry, O. S. U.
	C. M. Lewis	A. B.	"	Reporter "Columbus Evening Dispatch."

Class.	Name.	Degree.	Residence.	Occupation.
1882	W. W. Donham	B. S	Forgy, Ohio	Superintendent township schools.
	O. L. Fassig	B. S	New Haven, Ct	U. S. Signal Service at Yale College.
	F. W. Fay	A. B	Buffalo, New York	Architect.
	Sioux Glover	B. S	Pennsylvania—Wells Tannery	Mrs. Horton.
	Frederic Keffer	E. M	Columbus, Ohio	Electrical Engineer.
	Irvin Linson	A. B	London, Ohio	Teacher district school.
	John A. McDowell	B. S	Columbus, Ohio	Electrical Engineer.
	Cora Warner	B. Ph	"	Resident.
	H. L. Wiggus	B. S	Troy, Ohio	Attorney-at-law.
1883	Fremont Ackerman	C. E	Glen Haven, Wisconsin	R. R. engineer corps.
	J. N. Bradford	Mech. Eng	Columbus, Ohio	Teacher of Drawing, O. S. U.
	J. J. Dun	M. E	"	Civil and Mining Engineer.
	J. H. Galbraith	B. Ph	"	Managing Editor of "Columbus Daily Times."
	C. E. Higbee	B. Sc	"	Grocer—"Carmack & Higbee."
	A. B. Howard	B. Ph	Deer Lodge City, Montana Terr.	Clergyman.
	G. W. Knopp	B. Sc	Pittsburgh, Pa	Bridge Builder.
	C. F. Marvin	Mech. Eng	Washington, D. C	Ass't Prof. U. S. Signal Service.
	C. C. Miller	A. B	Eaton, Ohio	Superintendent public schools.
	F. W. Sperr	M. E	Jefferson, Ohio	Mining Engineer.
	E. M. Van Harlingen	B. Sc	Galveston, Texas	U. S. Signal Service.
1884	Eli O. Ackerman	C. E	Van Wert, Ohio	Deputy County Surveyor.
	J. T. Anderson	A. B	Fort Concho, Texas	Lieutenant U. S. army.
	Helena W. Chamberlain	A. B	New York, N. Y.	Resident.
	George W. Dun	B. Sc	Columbus, Ohio	Clerk county treasurer's office.
	J. R. Lovejoy	B. Sc	Lynn, Massachusetts	Thompson-Houston Electric Light Co.
	C. V. Mead	B. Ph	Jefferson, Ohio	Law student—Clerk Probate Judge's office.
	Edward Orton, Jr.	E. M	Columbus, Ohio	Chemist Columbus Steel Works.
	Annie W. Sabine	A. B	New Haven, Ct	Special student, Yale College.
	E. E. Sparks	A. B	Portsmouth, Ohio	Teacher—high school.

Class.	Name.	Degree.	Residence.	Occupation.
1884	J. B. Wikoff	B. Ph	Columbus, Ohio	Law Student.
	Geo. L. Morton	Mech. Eng	Washington, D. C	Examiner in U. S. Patent Office.
	C. W. DeLamater	A. B	Cincinnati, Ohio	Senior year, Cincinnati Law School.
1885	W. P. Bentley	B. S	Somerset, Kentucky	Fruit Grower.
	C. C. Greene	B. S	Middleport, Ohio	Medical student.
	W. H. Harrison	C. E	Columbus, Ohio	Draughtsman Union Pacific R'y Company.
	Ellis Lovejoy	E. M	Union Furnace, Ohio	Superintendent brick works.
	C. A. Marple	B. S	"	Clerk.
	W. R. Malone	A. B	Cambridge, Ohio	Principal of high school.
	M. N. Mix	B. Ph	Mansfield, Ohio	Reporter Mansfield Times.
	W. L. Peters	M. E	Columbus, Ohio	Columbus Buggy Co.
	C. V. Pleukharp	M. E	"	Castor manufacturer.
	W. J. Root	E. M	"	Analytical Chemist at O. S. U.
	E. L. T. Schaub	M. E	"	Machinist—Piqua shops.
	C. F. Scott	A. B	"	Student John's Hopkins.
	Mary O. Scott	A. B	"	Teacher Columbus High school.
	F. A. Taylor	A. B	London, Ohio	Editor of "The Vigilant."
	Geo. R. Twiss	M. E	Youngstown, Ohio	Teacher.
	Philo C. Smith	B. S	Middlebranch, Ohio	Farmer.
1886	Connell, William Adams	E. M	Portsmouth, Ohio	
	Converse, Edward Jasper	B. A	Columbus, "	
	Cunningham, George Strode	B. Ph	Lancaster, "	
	Devol, William Stow	B. Ag	Marietta, "	
	Erskine, James H	E. M	Lowellsville, "	
	Fisher, Clara	B. A	Columbus, "	
	Hill, Frank Edwin	B. Sc	Neville, "	
	Jones, Alfred Andrew	C. E	Columbus, "	
	Keifer, William White	B. A	Springfield, "	
	Masters, George Albert	C. E	Toledo, "	

OHIO STATE UNIVERSITY ALUMNI—NOVEMBER, 1885—Continued.

Class.	Name.	Degree.	Residence.	Occupation.
1886	Milligan, James Porter	B. A	Rushville, Ohio	
	Sabine, Wallace Clement	B. A	Columbus, "	
	Schroll, Otto	C. E	" "	
	Scott, Anna Neill	B. A	" "	
	Smith, Horace Porter	B. Sc	Adams Mills, Ohio	
	Vandervoort, William P	E. M	Morrow, Ohio	
	Viets, Willis Burton	E. M	Amboy, "	
	Watt, Sern Perley	M. E	Jamestown, Nebraska	